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PROGRESS IN THE NUTRITION OF INFANTS

CHAIRMAN'S ADDRESS

JAY I. DURAND, M.D.

SEATTLE

Successful artificial feeding of infants is a recent accomplishment. I can remember as a student attending the lectures on infant feeding, the blackboard generously covered with mathematical formulas. Toward the end of the last lecture something awakened me and I heard the professor's peroration: "You will find many babies who will not thrive on these formulae and you will have to try one food after another until you find one that the baby can digest."

During the Greek and Roman period, mothers nursed their babies or had slaves wetnurse them. Galen prescribed a panada of bread soaked in broth of flesh or legumes, but he alone of the ancient writers seems to have mentioned the subject of artificial feeding, although Hippocrates devoted twelve of his aphorisms to the tonsils, Celsus gave directions for their removal and even that modern subject, child psychology, was discussed.

Throughout the middle ages the child who was "dry" or "hand" fed stood little change of surviving. Pap and panada came to be quite extensively used, but chiefly as a complemental food and during weaning.

A seer centuries in advance of his time was Simon de Vallembert, 1565. He recommended "bread or flour, which may be first dried in the oven, grated, cooked in broth, with milk of the cow or goat, and finally butter or egg yolk may be added to make it more nutritious, and honey to guard against constipation." It is conceivable that, had he hit on suitable proportions, this mixture might have been a satisfactory food even earlier than at 3 months, when he recommended its use. Unfortunately his directions were not widely followed, though similar mixtures continued in use, and in 1813 James Hamilton wrote, "Pap and panada be now almost universally used for the first food of infants and as a substitute for mother's milk." These were mixtures of bread, flour and cereals cooked in broth, wine or beer, with additions at times of butter, egg, brown or white sugar, honey and cow's or goat's milk.

In the days when the formula was diluted with water from the Thames, when the cow's horn was the nursing bottle, with a cloth, sponge or leather nipple furnishing the mouthpiece, and when premasticating the panada was the custom, hand feeding was necessarily most hazardous. The discovery of the rôle of bacteria in the pathogenesis of disease, with the resultant methods of sterilization, pasteurization and refrigeration, was indispensable as a foundation on which a science of artificial feeding could be built.

The beginnings of the structure were the analysis of milk and the attempt to approximate, by modification, the composition of breast milk. Biedert began this work in 1869; John F. Meigs and Thomas Rotch in this country elaborated it in the development of the percentage method of feeding.

Abraham Jacobi, the founder of this section, in advocating simple dilutions of boiled milk with sugar additions, widely followed here and in Germany, developed the most practical and certainly the simplest method of his time.

It is only in the last three decades that progress in this science has been rapid. Rubner and Heubner worked out the child's caloric requirements; Czerny and Keller investigated the effect of and damage done by excessive amounts of various elements, and Finkelstein and Meyer classified nutritional disorders. Feeding became the topic of conversation wherever two or more pediatricians were gathered together and the bone of contention at larger meetings. I can truthfully say that the science of artificial nutrition has developed within the memory of many here today. Now how far has this science progressed and how successful has the pediatrician become in its application?

Until recently, the mortality of artificially fed infants has been appalling. Marriman, in the early part of the nineteenth century, said that hand-feeding proved fatal in "seven out of eight of these miserable sufferers." The death rate in the foundling and infant asylums was particularly terrible. In Rouen, from 1763 to 1765, only 3 of 132 hand-fed infants survived; in Dublin, of 10,000 admissions from 1775 to 1796, less than 1 per cent lived; the Paris Foundlings Hospital furnished a mortality of 85 per cent of 32,000 admitted; London institutions, up to 1767, when parliament required infants to be sent to foster parents in the country, reported 2,690 deaths in 2,800 annual admissions. And until the last decade these distressing statistics were not greatly improved on in the orphanage.

Brennemann said that in his early days of practice the mortality in a foundling's home where he was an attendant was nearer 100 than 50 per cent. In the Berlin Waisenhaus and Kinderasyl when Finkelstein took charge, conditions were equally bad. In 1913, when I had the privilege of six months' study there, we were immensely proud of a reduction to 13 per cent. About forty wetnurses were then employed to furnish "nature's specific food" to premature infants and in

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difficult cases. Mortality figures since then tell a remarkable story: in 1920, 12.9 per cent; in 1923, 9.3 per cent; in 1925, 4.3 per cent, and in 1929, 3 per cent. Last year, with only one wetnurse remaining in the institution, the death rate was 2.5 per cent. The material throughout the period remained unchanged.

Compare this figure, 2.5 per cent, with the lowest mortality anywhere under most favorable conditions. Realize that this result was achieved entirely by artificial feeding, in a foundlings' hospital with hundreds of admissions annually. Go there and see the charts showing ideal gains in weight in almost every case and the vigorous healthy babies with the rosy glow of health shining through their firm tissues, and you will agree with me when I state with assurance: All major problems of artificial nutrition have now been solved. The results, under most skilful direction, closely approximate, perhaps equal, those of successful breast feeding, not only in gain in weight, tissue turgor, color and vigor, but in resistance to and recovery from infection.

In reviewing the journey made from almost complete failure to almost complete success in artificial feeding, I wish to touch on some of the salient features of the more recent progress and comment on certain phases in the present teaching of the German school and current practice in the Berlin Waisenhaus.

In this institution, Heinrich Finkelstein, L. F. Meyer and their associates worked out many principles and practical measures of the greatest value. Pediatricians in every part of the world, including more than a score of the now accepted leaders in this country, will ever hold in grateful memory their kindly reception as students within its walls and the instruction so graciously and freely given by these fine scientists and capable, unselfish teachers.

ESSENTIAL FEATURES OF PROBLEM

The essential points to be stressed as a basis for discussion may be summarized as follows:

1. The casein curd of cow's milk must be modified. Halfway measures have been discarded. Boiling and acidification do this equally satisfactorily, and the question of the buffer substance is of considerably less interest than formerly.

2. The discovery of the accessory food factors not only did away with rickets, its resultant deformities and the more fatal tetany, with scurvy, xerophthalmia, etc., through the list of avitaminoses, but incidentally improved the infant's resistance to infection.

To which vitamins gratitude is due for this greater immunity is still a matter of some dispute and much investigation. In all probability, each has a part. Certainly, a marked deficiency of any one of them tends to weaken the resistance of the child, and fortunately today it is not difficult to supply all in sufficient quantity.

3. It has at last been recognized that hunger is the greatest danger of the infant and the younger the child the greater is that danger. The barley water, albumin water and skimmed milk diets of the past have wrecked more of those starting life's journey than any other one factor, except perhaps pathogenic bacteria.

4. The early broadening of the diet is now generally accepted. Recent years have seen egg yolk, cereals, cod liver oil, vegetables, fruit pulp, meat, fish, fowl and liver given earlier and earlier without resulting disturbance. A timely supply of a generous variety of minerals, fats, vitamins and proteins, from which the cell may choose those nearest its metabolistic heart's desire, is greatly lessening nutritional anemias and building generally more firm, resistant tissues.

5. Pediatricians are convalescing from the stage of one-sided diets, and are learning to construct the feeding which offers the best quota of all necessary elements. In general, the best guide to the optimal proportions is that of breast milk, in which protein, fat and carbohydrate are in the percentages of 1, 3.5 and 7. Meyer has said that the most important relationship is the 1 : 2 ratio between fat and carbohydrate; that the failure of every effort with straight cow's milk has been solely due to its 1 : 1 ratio. He said: "The rapidly burning carbohydrate and slowly burning fat have important inter-relations in metabolism and play opposite rôles, somewhat similar to the calcium and potassium interplay in the mineral metabolism. Fat restricts, carbohydrate favors water retention; fat makes water stable, carbohydrate water-labile additions to the organism. Fat increases immunity and carbohydrate in too great proportion decreases it." The fat can be increased if the 1 : 2 proportion with the carbohydrates is maintained. Early additions of browned butter are tolerated better than cream, and this with egg yolk and cod liver oil are most valuable in producing the firm fat cushions in the cheeks, buttocks, legs, arms and chest, which furnish nourishment reserve and protect against change in temperature. The increase or decrease of this fat cushion is the most delicate index that one has of the nutritional condition of the child.

6. There is a growing tendency to reduce the amount of milk in infant feeding. Moll believes there is a milk injury due to excessive amounts and characterized by paleness and an enlarged liver and spleen. Alfred Hess has stated that children develop more rickets on a quart than on a pint of milk daily. The German school sets the limit of 0.5 liter as the total for any one day. While I share the prevalent dislike for rigid laws, in my feeding practice during the past two years I have rarely exceeded this amount. I am convinced that the result has been beneficial and that the method presents no difficulties. It, at least, necessitates earlier addition of other foods, encouraging greater variety.

7. Limitation of the total quantity of fluid deserves consideration. Except during periods of excessive heat or during fever or watery diarrhea, the infant does well on one fifth of its body weight of fluid daily during the first weeks, one seventh at 6 months, and one eighth up to the first year. If fluids are kept near this level, less vomiting occurs, the bottle is more readily emptied, the bed and clothing are not so constantly water-soaked, the insulation against changes in surrounding temperature is consequently better and the skin is less irritated.

INSTITUTIONAL DIARRHEA

"Man does not live by bread alone" nor does the nursling by its milk formula. Infants in institutions are prone to diarrhea, just as in private homes the tendency is to a beneficial constipation. Within from one to three weeks after entering the hospitals, regardless of the kind of nourishment, even breast milk, a large percentage of infants develop loose stools. The younger they are, the more frequently this occurs. In the Waisenhaus, in a series of 443 case studies, this primary diarrhea developed in 99 per cent of those admitted in the first month, in 70 per cent of those up to 6 months of age and in 33.3 per cent of those from

10 to 12 months old. Diarrhea stopped gain in weight, weakened the resistance of the child and laid the foundation for the dyspepsias, intoxications and atrophies which often promptly resulted. Infections following these added the finishing touch to that clinical picture known as *Hospitalismus*. This syndrome has been the rock on which institutional care of young infants has foundered. It has been generally attributed to either enteral or parenteral infection, and elaborate systems of isolation, box wards and sterilization of all materials touching the child have been instituted without much success.

The mistake which long delayed the solving of the problem was too frequent, too great and too long-continued reduction in diet. Most initial diarrheas are monosymptomatic affairs which, like the diarrheas often seen in breast-fed infants, clear up in two weeks on any diet covering nutritional needs; some children gain during the disturbance. The food may often need to be increased to care for the "inner hunger" caused by decreased absorption from too rapid peristalsis. Since ample feedings have been maintained, in only a small percentage of cases does the initial diarrhea drift over into the more severe polysymptomatic type with fever, vomiting and loss of weight. Even in such cases, the tea-with-saccharin period is reduced to eight to twelve hours, followed by ten feedings of 10 cc. of protein milk with 6 per cent carbohydrate addition. This is increased daily by 10 cc. at each feeding, and the nutritional needs are fully covered by the eighth day, at the latest, regardless of the condition of the stools. This treatment controlled the death rate and damage effected by diarrheas. Nevertheless, this institutional diarrhea appeared in almost all the newly admitted infants.

An illuminating research by Meyer and Jahr [1] was under way during my last visit; it is to be published shortly and Professor Meyer has sent me the findings to be reported here.

Believing the diarrhea to be caused by infection from bacteria swarming in the milieu of the hospital ward, an infant on admission was given to one of their most experienced nurses to be cared for in her room in the nurse's home. These special nurses were kept away from the wards. Even when the attendant returned to part-time duty in a ward where the disturbance existed, no diarrhea developed in the isolated baby. These infants were later placed in a ward but given special day and night care by one skilful nurse. None developed the diarrhea.

When children already suffering from the disorder were given this expert care, the stools improved at once and within three to four days became normal. Since there was no change in the feeding, the cure is solely attributable to the perfection and artistry of the nursing. It was found that the best nurses could "special" two babies and keep them free from the institutional diarrhea, but when three or more were placed under the care of a single nurse, mild cases began to appear.

This experiment repeated many times over a two-year period has convinced the observers that although parenteral and enteral infections resulting in diarrhea do occur, the determining factor in the majority of cases is the nervous and psychic trauma incident to life in the hospital ward. Recent studies have revealed that the total sleep of ward children is much less than of those in private homes. Every one knows that a person digests his food poorly if he is harassed and worried.

Pavlov and his students have called attention to the effect of even slight irritants on gastric motility and secretion of the intestinal glands. The life of the infant in the ward is made up of just such irritations: The changes of nurses, the physician's rounds, the taking of the temperature, the sudden movements of the hurried nurse in changing, bathing and weighing the baby, and the hasty movements in picking it up and laying it down shock and frighten the infant. To all these irritations, because of its very unstable autonomic nervous system, the infant responds excessively, and disturbed function and diarrhea result.

If one accepts these conclusions, as I think one must, they have wide applications, not only to diarrheas, but to vomiting and colic, and not only in institutional wards but in private homes, where too numerous, over-anxious, perhaps neurotic attendants supply the irritation. If the well child is so affected, how much more is the sick infant.

The remedy lies in the perfection of the nursing art, which throws about the infant, as Jahr has said, "The atmosphere of rest and well being, which pays attention to the need of sleep, regulates the nursing intervals and the quantity of food to the individual, and reduces disturbing and irritating factors to a minimum."

When Abraham Jacobi made his great plea for breast feeding in his presidential address before the American Medical Association, in 1912, his reason was obvious, for he cited a mortality rate of 6.98 per cent among breast-fed infants versus 19.75 per cent among those exclusively fed on the bottle. Sedgwick's crusade for maternal nursing five years later was more than justified by the summer peak in the infant mortality curve. Both reasons have largely disappeared in the progress of contemporary science. Modern conditions have changed the physical life of primitive woman to one that is largely mental and emotional, and the mother today is rarely of the contented bovine variety. In spite of the efforts of the pediatrician the number who nurse their babies is steadily diminishing.

I do not believe that we are likely to improve on "nature's specific food" as Brennemann termed mother's milk. I believe it to be of especial value in establishing the best bacterial flora in the intestine during the first days of life. But granted a skilled pediatrician to prescribe and an intelligent mother to prepare the formulas, I think that one's conscience need trouble one less than heretofore if the mother with sore nipples or an inadequate supply of milk is relieved from a long-continued, unhappy effort to supply a portion of her baby's food.

1. Meyer, L. F., and Jahr, J.: Ueber initiale Diarrhöen im Säuglingsalter, Gesundhfürs. f. d. Kindesalt. 7: 1 (Feb.) 1932.

Human Factor in Infantile Paralysis.—One of the most striking features of the infantile paralysis people is the Mongoloid trend in the palpebral fissure and the not infrequent presence of an epicanthal fold. The latter character, so rarely found in the Caucasian race, appears more often than among the controls. But far more common, indeed almost universally so, is the peculiar smooth downward curving slant of the inner half of the arc of the upper eyelid. This feature is present whether or not the inner canthus is at a definitely lower level than the outer. The latter arrangement produces the well defined slant, downward and inward, of the whole eye slit. This feature may often be present in the poliomyelitis people but not by any means in all cases.—Draper, George: The Nature of the Human Factor in Infantile Paralysis, *Am. J. M. Sc.* **184**:115 (July) 1932.

ACUTE INTESTINAL OBSTRUCTION

DUE TO MESENTERIC DEFECTS REQUIRING MASSIVE RESECTION

CHARLES REID EDWARDS, M.D.
BALTIMORE

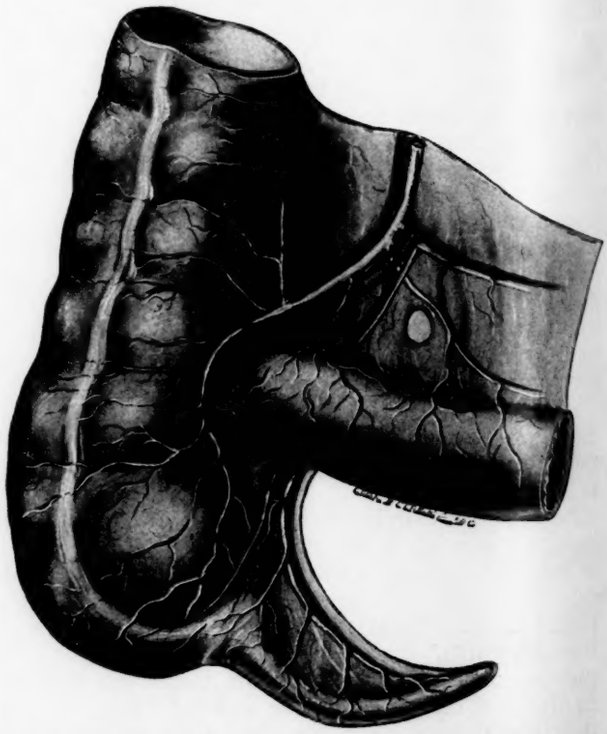
The mesentery is infrequently the site of departures from the normal to the extent that there is an interference with the physiologic functions of the intestine. And it is so peculiarly constructed that an adaptation to change in the intestine may be effected without embarrassment to normal functions. Since the mesentery is the structure supporting the blood, lymph and nerve supply to the intestine, it would appear that one should frequently encounter conditions within the mesentery requiring surgical intervention, but this is not the case. Most of the acquired changes within the mesentery have their origin in inflammatory processes, and unless there is a complete interruption to the circulation, as in mesenteric vascular occlusion, surgical intervention is rarely indicated. Abdominal infections extending into the mesenteric lymph glands and postperitoneal lymphadenitis developing from other sources seldom demand anything more than simple drainage, as the circulation to the intestine remains intact. Neoplasms may, and frequently do, involve the mesentery, but in a majority of instances, a radical surgical procedure is contraindicated. Cysts and other tumors developing in this region may require radical surgical measures, but they are rare. Adhesions, always to be considered as of inflammatory origin, frequently demand operation for the relief from pain and obstruction, but they can scarcely be looked on as inherent defects of the mesentery. Trauma of the abdomen may rupture mesenteric vessels or separate the intestine from its mesentery, causing severe hemorrhage, or it may produce a wound in the mesentery which will allow coils of intestine to pass through, and, later, to become strangulated.

Congenital defects do occur. The mesentery may be excessively long, or, on the contrary, too short; sections may be missing, or there may be anomalous developments in the arrangement of the blood supply. The translucent spaces may be actual openings in the mesentery. Therefore, a hole appears within an anastomotic loop, and it may permit a coil of intestine to pass through. Intestinal obstruction caused by the passage of a loop of small bowel through this abnormal opening in the mesentery is probably the rarest of all factors responsible for intestinal obstruction, and the infrequency of this condition with a consideration of the extent of its pathologic manifestations prompts me to bring it to your attention.

Brown,[1] in 1920, summarized twenty cases of this malady, and Cutler, in 1925, tabulated data concerning these cases and eight others, two of which were from the surgical clinic of the Children's Hospital, Boston. Elston,[2] in 1926, reported a case in which, "a small ring-like aperture, about the size of a lead pencil," was responsible for the obstruction. His patient recovered after resection of 76 inches (193 cm.) of small intestine. Strangulation began 4 inches (10 cm.) above the ileocecal junction, where the opening was located.

McWorther,[3] in 1928, added the report of a case coming under his observation which is unique in that there was an opening in the mesentery in the middle of the abdomen, through which the two ends of a bifid omentum had fused, producing an obstruction of the jejunum by constriction. His patient recovered following a resection of a portion of the omentum and suturing of the aperture in the mesentery.

Judd,[4] in 1929, added the report of a case in which a mesenteric defect was the cause of an obstruction to the colon. The opening was near the center of the mesentery to the small intestine, and the right section of the colon and the lower part of the ileum had passed through this rent. With Hamaker's [5] case, there are but two cases on record in which obstruction of the large intestine has occurred.



The opening is distal to the terminal small intestinal vessels, but it is proximal to that supplying the ileocecal junction, the appendix and the proximal cecum.

According to Hohlbaum,[6] the hole in the mesentery is usually near the ileocecal region, and this observation has been confirmed by Brown,[1] Cutler,[7] Elston [2] and me, but Judd [4] and McWorther [3] found apertures more centrally located.

Treves has shown, that in addition to certain slit-like holes due to injury, there are congenital defects in the mesentery and he has called attention to the fact that the latter are round; are in the lower ileum; are surrounded by an anastomotic arch between the ileo-colic branch of the superior mesenteric artery and the last of the intestinal arteries; that the area is often the seat of atrophied peritoneum, and that fat, visible blood

Read before the Section on Surgery, General and Abdominal, at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

1. Brown, H. P., Jr.: Intraperitoneal Hernia of the Ileum Through a Mesenteric Defect, Am. J. Surg. **72**: 516, 1920.
2. Elston, Lynn W.: Intra Abdominal Hernias with Report of a Case, J. Indiana M. A. **19**: 157 (April) 1926.
3. McWorther: Ends of Omentum Fused Through Opening in Mesentery, S. Clin. North America **8**: 533 (June) 1928.
4. Judd, J. R.: Mesenteric Defects, Surg., Gynec. & Obst. **48**: 264 (Feb.) 1929.
5. Hamaker, W. D.: A Unique Case of Bowel Obstruction, J. A. M. A. **62**: 204 (Jan. 17) 1914.
6. Hohlbaum, abstr. in Heller, E. C.: Defects in Lowest Portion of Ileum Near Ileocaecal Junction, Surg., Gynec. & Obst. (Internat. Abstract Surg.) **31**: 372, 1920.
7. Cutler, G. D.: Mesenteric Defects, Boston M. & S. J. **192**: 305 (Feb. 12) 1925.

vessels and glands are absent. Herniae of knuckles of gut through this cribriform area of mesentery could occur with comparative ease.[8]

The opening is usually just mesial to the artery supplying the terminal part of the ileum, the appendix and the first portion of the cecum. This accounts for the fact that the terminal part of the ileum and the cecum are not included in the gangrenous process.

Evidences of previous inflammations have been observed by Hohlbaum, as stated by Prutz,[9] but accumulating data discredit inflammation as a frequent cause of this anomaly. Trauma as a possible factor has been noted by Cutler [7] in seven instances in the twenty-eight cases abstracted and tabulated by him, but it was not observed in the three cases subsequently appearing in the literature, namely, those of McWorther (one), Judd (one), Elston (one) and the two herein reported.

In Brown's [1] cases, the edges of the aperture were rough, and there was a history of recent trauma. In a great majority of the other cases the edges of the hole are described as being smooth, suggesting that they have been of long standing. In my two cases, they were smooth and rather hard, both mesenteries being of average thickness and apparently healthy, and the apertures were about 1 cm. in diameter.

Just what mechanism is responsible for the passage of a loop of bowel through this aperture is a matter of conjecture. McWorther [3] recorded the history of attacks of pain and indigestion in his case, and from the nature of the case this is readily appreciated; but in only six of the remaining cases was there a history of previous attacks of pain, and there is nothing in the cases herein reported to indicate that there had been occasions when the intestine had passed into or through this opening. The size and shape of the aperture would almost preclude the possibility of a spontaneous reduction once the bowel had passed through. In most intestinal obstructions due to internal herniation of the bowel through preexisting foramina or into fossae, the amount of intestine involved is limited by the size of the cavity into which it escapes. The same condition does not prevail when the bowel protrudes through a mesenteric defect, and once a loop has been projected through this opening, distention within the loop and peristaltic movement serve to force more and more of the intestine through the opening, only to become strangulated.

The percentage of recoveries has been high when reduction of the bowel could be effected. The age of the patient seems to have little influence on the end-results when resection was necessary; also, the amount of intestine resected does not govern the outcome. Early operation is the only hope the patient has for recovery. Of the known operations, there have been eight resections with four recoveries and thirteen reductions (not including McWorther's [3] case, because the intestine did not pass through the mesentery) with eleven recoveries, and in all twenty-one operations with fifteen recoveries—a mortality, therefore, of 28.5 per cent.

REPORT OF CASES

CASE 1.—Mrs. M. F., a widow, white, aged 73, became sick about 6:30 p. m., Sept. 15, 1924, while eating supper. She was in her usual state of health, and suddenly experienced a severe pain in the right side of the abdomen. A physician was called; he thought that she was suffering from an acute attack of gallstones. He administered a hypodermic of morphine, but no relief was obtained and two more doses were similarly administered. The pain was not relieved, and the family physician, who had attended the patient on various occasions for a slight cardiac decompensation, was located. He saw her about 3 a. m. the next day, and was under the impression that she had a mesenteric thrombosis and referred her for treatment. She had become much worse and still complained of severe abdominal pain. She was admitted to the University Hospital, Baltimore, about 4:30 a. m., on September 16. I saw her immediately, and found a greatly distended abdomen, which was very tympanitic. Intestinal patterns were visible over the entire abdomen. The pulse rate was 120; the respirations, 20 and shallow, and there was a subnormal temperature. She had not vomited and experienced no nausea until after admission to the hospital, but she was still complaining of severe pain to the right of the umbilicus. The first impression was that the condition was mesenteric thrombosis; the second, that it was intestinal obstruction.

Immediate operation was advised, and was performed ten hours after the onset of symptoms. Under local infiltration anesthesia (0.5 per cent of procaine hydrochloride), the abdomen was opened through a long left rectus incision. A great quantity of black, distended bowel was seen, and it almost filled the abdomen. Considerable dark fluid escaped. The mass of bowel was lifted out of the abdomen and traced to the obstruction, which was found to be a hole in the mesentery near the ileocecal valve. The strangulated bowel extended to within 2 inches (5 cm.) of the lower limit of the ileum. The gangrenous bowel with its mesentery was resected *en masse*, and a lateral anastomosis, the small bowel to the cecum, was made. The abdomen was closed without drainage. Examination of the specimen showed that the ileum had passed through an opening in the mesentery 1 cm. in diameter. It could not be reduced even after being removed from the patient. The mesentery was split; the edges of the opening were smooth and firm, and the mesentery was of usual thickness. The resected bowel measured between 6 and 7 feet (182 and 212 cm.). The patient gradually came out of shock and made an uneventful recovery.

CASE 2.—C. D., a colored man, aged 27, single, was admitted to the Provident Hospital, Baltimore, about 9:30 p. m., Jan. 11, 1929. He had always been healthy, and, except for a gonorrheal infection in 1919 and a small abscess in the region of the anus, there was nothing in the past history worthy of note. He was awakened on the aforementioned date at 3 a. m. by a pain in the umbilical region; soon afterward he took a large dose of epsom salt, and obtained no relief but grew worse. Later in the morning the bowels moved, but the pain was not relieved. He began to vomit about 11 a. m., the vomitus being clear. The pain became more severe, and the abdomen began to distend. A physician was called at 3 p. m., and he advised immediate hospitalization, but the patient delayed entering the hospital until 9 p. m. There was no history of a previous attack. On the patient's admission to the hospital, the abdomen was greatly distended and tender throughout, especially on the right side, extending laterally into the lumbar region, and he was extremely rigid on the entire right side and about the umbilicus. There was a leukocytosis of 18,000 with 80 per cent polymorphonuclears. The urine was normal; the temperature, 97 F., the pulse rate, 110, and the blood pressure 120 systolic and 85 diastolic. The impression gained was that the condition was acute appendicitis with intestinal obstruction.

Immediate operation was advised, and it was performed nineteen hours after the onset of symptoms. With the patient under ether anesthesia, the abdomen was opened through a right rectus incision. It was filled with dark fluid and gangrenous small bowel, which was greatly distended. The dark intestine was lifted out of the abdomen, and the cause of the obstruction sought. It was soon found to be an opening in the mesentery through which the small bowel had passed. Reduction could not be effected. The aperture in the mesentery was about 2 inches mesial to the ileocecal valve. The strangulated bowel and a V-shaped section of the mesentery were resected *en masse*, and an end-to-end anastomosis of the small bowel

8. Treves, in Piersol, G. A.: Human Anatomy, Philadelphia, J. B. Lippincott Company, 1919, p. 1759.
9. Prutz, W., and Monnier, E.: Die chirurgischen Krankheiten und die Verletzungen des Darmgekröses und der Netze, Stuttgart, Ferdinand Enke, 1913; Deutsche Chirurgie, no. 46 K.

was effected, a Murphy button being used. The abdomen was closed without drainage. Examination of the specimen showed an opening 1 cm. in diameter in the mesentery to the small intestine, through which 56 inches (142 cm.) of small intestine had protruded. The intestine could not be reduced. The mesentery was split, and the edges of the aperture were found to be smooth and firm and in a mesentery of average thickness. The patient's strength was supported by the intravenous and subcutaneous administration of dextrose and salt solutions. On the fifth, sixth and seventh postoperative days the patient had an intractable diarrhea, but otherwise his recovery was uneventful.

CONCLUSIONS

1. Abnormal openings in the mesentery are rare.
2. They are usually of congenital origin.
3. Injury has not been demonstrated as an etiologic factor in many instances.
4. The openings are most frequently located in the mesentery to the ileum within 2 or 3 inches of its juncture with the cecum.
5. When intestinal obstruction results, massive resections are likely to be required.
6. Early diagnosis of intestinal obstruction and immediate operation will reduce the mortality.

ABSTRACT OF DISCUSSION

DR. OWEN H. WANGENSTEEN, Minneapolis: In dealing surgically with nonviable intestine such as Dr. Edwards has described, one should be guided by three fundamental considerations. The first of these is how much intestine can be safely excised from the nutritional standpoint. The best guides are recorded clinical observations and animal experimentation. Flint came to the conclusion that in the dog one can safely sacrifice about one half of the small intestine. Some dogs withstood, with dietary regulations, excision of 80 per cent of the small intestine. There are a large number of cases recorded in which sacrifice of from one half to two thirds of the small intestine has been well tolerated by man. Adults accommodate themselves much more quickly to an extensive resection of the small intestine than do children. A second important consideration is "How much blood is lost into the infarcted segment?" In evaluating some of the lethal factors in strangulation obstruction, Dr. Horace Scott and I found that the blood loss was frequently very significant. A dog with the veins tied to a segment of intestine about 3 feet in length will die of shock in four or five hours. The other consideration is the question of what is the best manner of dealing surgically with nonviable intestine. Although the mortality in strangulated hernia for the group is not high, the mortality when primary resection is done lies generally between 40 and 50 per cent. Whereas primary resections can be done in dogs with a fair degree of safety for strangulations, recorded experience with primary resection in strangulated hernia stamps the procedure as unsafe. I feel rather strongly that, in the average case in which a few feet of nonviable intestine must be excised, exteriorization and establishment of a complete external fistula followed by secondary anastomosis at an opportune time carries less risk for the patient. In unusual instances necessitating a high fistula or an extraordinary sacrifice of intestine, it is better to assume the risk of primary resection. I will mention a nonoperative method of decompressing the intestine in simple mechanical obstruction. At the University Hospital in the last year, of twelve consecutive cases of adhesive obstruction of an acute nature, nine have been successfully decompressed by nasal catheter suction siphonage without operation. In three instances an enterostomy was also necessary.

DR. E. D. MARTIN, New Orleans: Two or three suggestions have occurred to me. First, the diagnosis is rather difficult. I have not had any cases of this particular kind, but I have had a number of strangulations following operations, and a few cases of torsion, but this is a different proposition altogether. When there is no previous history of operation, a rather sudden onset, and increasing symptoms, I think it is time to operate. One loses time by waiting. One should not do as is so frequently done in these days; namely, go to one's laboratory to make a diagnosis. One should use the old-fashioned method and do an exploratory laparotomy. Certainly one does less harm by performing a laparotomy early than by waiting until one has a positive diagnosis. Once the intestine begins to crawl through the mesenteric opening, the peristaltic motion will carry it on, and the longer it stays the more intestine one will have to resect. One should resect all the gangrenous portion and get through as quickly as one can. The amount of intestine to be removed is measured by the amount of gangrene regardless of the rules for safety.

DR. HAROLD M. TRUSLER, Indianapolis: Acute intestinal obstruction constitutes one of the major surgical catastrophes. In the absence of surgical intervention, a fatal outcome is practically certain. With prompt action and proper treatment, the chances of saving a life are exceedingly good. From the very beginning of scientific surgical investigation, the cause of death in ileus has been subjected to much study and speculation. Because of conflict and controversy and discrepancy, much of the early research work has been forgotten or contradicted and discarded, only to be remodeled at a later time and presented again. Far too often the attempt has been made to investigate the subject as a whole as though one should expect to find a single universal cause of death in acute intestinal obstruction. One might just as logically attempt to designate a universal cause of death in acute appendicitis. For the past six years at the Indiana University School of Medicine, Dr. Gatch and I have been investigating this subject. We prefer to classify the many factors that may cause death, placing them in two groups: 1. In simple obstruction in which for any cause there is blocking of the intestinal contents without strangulation of the intestine, the lethal factors are (*a*) dehydration, (*b*) loss of blood chlorides, and (*c*) alkalosis, leading to gastric tetany and, lastly, inanition. 2. In strangulation of the intestine in which the intestinal wall is grossly altered by overdistention or interference with mesenteric circulation, the additional and far more menacing factors are peritonitis, septicemia and toxemia. It is this toxemia which is poorly understood and which has received a tremendous amount of study. Investigations concerning the nature of the toxins are interesting but have thus far added nothing to the saving of lives. We have demonstrated to our own satisfaction that it is unnecessary to assume the production of any mysterious toxin in intestinal obstruction. The contents of normal intestine, either before obstruction occurs or after its release, are as poisonous when injected into the circulation of experimental animals as are the toxins of the obstructed loops. The questions concerning absorption of these toxins under the abnormal conditions of obstruction and strangulation are most baffling. It is quite possible, however, that in this phase of the subject much ado is being made about little. Perhaps this should be considered no more mysterious than the toxemia that results from any acute intestinal infection. Obstruction, then, is another condition which readily becomes fatal only when sufficient insult is added to injury.

DR. WILLARD BARTLETT, JR., St. Louis: My father recently made the statement that in all his years of practice of surgery he had never seen a case of intestinal obstruction in the early stages in which the abdomen was flat and only paroxysmal pain was present. In view of the fact that we are getting the class of cases that are very late in their obstruction, we plan to add as little surgical insult to their preexisting injury as possible. As soon as physiologic balance in water and chlorides is restored, we do an enterostomy through a muscle-splitting incision; if the peritoneal fluid is not bloody, we make the incision in the peritoneum only half an inch long, pick up the first distended loop encountered, tack it to the peritoneum to make a water-tight joint, and slip in a guttered rubber tube. No closure is made. The procedure takes about ten minutes and can be done readily under local or preferably spinal anesthesia. I want to call attention to a rather useful procedure in the after-care of this therapeutic fecal fistula. The tube will fall out in four or five days. At the end of ten days, adhesions are dense enough so that one can insert a Pezzer catheter into the intestine and draw its head back against the wall of the intestine and the abdominal wall, making a water-tight joint. It is readily maintained there and may be left in place as long as necessary. During the intervening period when the intestinal contents are draining across the abdominal wall, we have little trouble with the condition of the skin by putting the patient in

"colloid" baths two or three times a day and by keeping a paste of egg albumin slightly thickened with flour around the surrounding tissue. We have left a catheter in place for as long as six months. The tube, of course, is clamped off after normal passage is reestablished, but the "safety valve" is maintained for as long as one wants to keep it and the patient goes about his ordinary occupations. We have had to do only one secondary closure in these cases. We have succeeded in closing one without operation that had been kept open for five months continuously.

DR. C. R. EDWARDS, Baltimore: I want to emphasize two points. The first is the responsibility that the general practitioner or other physician who first sees the patient has in making a diagnosis of intestinal obstruction, and the second, the responsibility of the general surgeon in handling it.

FURTHER NOTES ON PITUITARY BASOPHILISM

HARVEY CUSHING, M.D.
BOSTON

In a recent paper,[1] twelve examples of a peculiar and clinically unmistakable polyglandular syndrome were reported. The disorder is characterized by a rapidly acquired plethoric adiposity affecting the face, neck and trunk, the extremities being spared. It is associated in women with hypertrichosis and amenorrhea. Other characteristic features are vascular hypertension, purplish striae distensae of the abdomen, and acrocyanosis with cutis marmorata of the extremities. It is often accompanied by hyperglycemia, occasionally by polycythemia, and a peculiar softening of the bones of the skeleton has been commonly found at autopsy. In its extreme forms, the malady has more often been encountered in young adults, and the average duration of life in the fatal cases has been something over five years.

It is not an uncommon syndrome. Numerous typical examples have been reported, the disease in most instances having been ascribed to a primary adrenal dis-

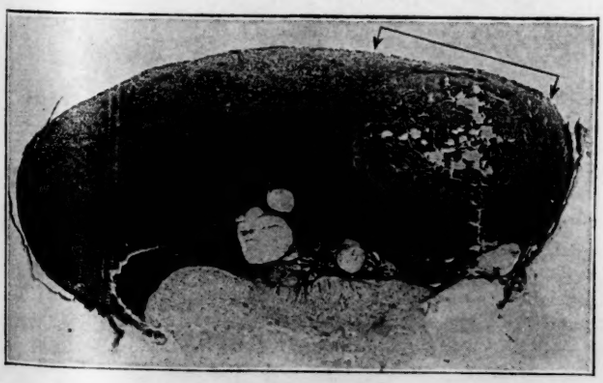


Fig. 1.—Coronal section of basophil adenoma from Dr. Anderson's patient (case 3 of former report).

order for the reason that cortical hyperplasia is a not uncommon postmortem observation. However, in five of the eight cases that had come to autopsy an unsuspected pituitary adenoma was found; and the fact that three of them were unmistakably composed of basophilic elements made it probable, in view of the supposed rarity of adenomas of this type, that the pituitary lesion was the primary cause of the syndrome. This at least was the interpretation put upon the matter, the symptomatic evidences of disordered function of adrenal cortex, of pancreatic islets, of parathyroid glandules and of reproductive glands being looked on as wholly secondary expressions of the general endocrine derangement.

Since the publication of the preceding paper, new facts have come to hand which seem further to strengthen the views therein expressed. Through the kindness of Dr. Anderson, it has been possible to examine microscopic slides of the pituitary body of

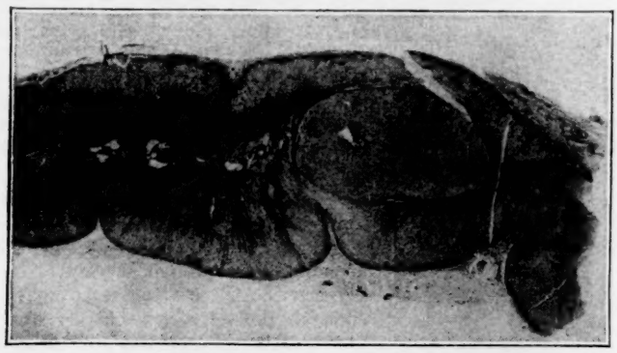


Fig. 2.—Adrenal adenoma from Dr. Anderson's patient.

case 3, the undifferentiated adenoma being unquestionably of basophilic type. Its size and situation as well as that of the associated adrenal adenoma are shown in figures 1 and 2; and had this been an isolated example of the syndrome in question, it might well enough have been ascribed to either of the tumors. It, however, is the only instance in the series in which dual adenomas were observed. Adenomatous tumefactions of the adrenal cortex, as is well known, are a not uncommon accompaniment of the chromophil adenomas of acromegaly, and no one regards acromegaly as primarily an adrenal disorder.

Dr. Wieth-Pedersen has also forwarded blocks of the tissues from case 12. The pituitary tumor is a large one and, as his description indicated, it is composed of peculiar nongranular elements. This, while disappointing, does not necessarily mean that there may not have been a minute basophilic adenoma somewhere in the periphery of the intracellular mass. To determine this would have necessitated complete serial sections of the entire growth, only a thin slab of which had been preserved.[2]

Information that is of greater value has been acquired from the following additional cases. To the first of them my attention had been called while the original paper was being put together. It would have been included therein had not the photographs of the patient been somewhat unconvincing and had not the pituitary body been described as showing no abnormality. The case was reported by Professor Julius Bauer [3] of Vienna as an example of overfunction of the adrenal system "without anatomical findings," and I have his kind permission briefly to report it again from another angle.

CASE 13 [Professor Bauer's patient].—*Rapidly acquired, plethoric obesity with hypertrichosis and amenorrhea. Vascular hypertension. Cutaneous pigmentation. Glycosuria. Clini-*

1. Cushing, Harvey: The Basophil Adenomas of the Pituitary Body and Their Clinical Manifestations (Pituitary Basophilism), Bull. Johns Hopkins Hosp. **50**: 137-195 (March) 1932.

2. It has not been possible to get any further information regarding the pituitary body of cases 2 and 4, and since Professor Busse's death the tissues of Dr. Mooser's patient (case 9) have unfortunately been thrown away.

3. Bauer, Julius: Ueberfunktion des gesamten Nebennierensystems ohne anatomischen Befund, Wien. klin. Wchnschr. **43**: 582-586 (May 8) 1930.

cal diagnosis, adrenal tumor; exploratory operation; fatality. Autopsy: ductless glands, apart from ovary, normal. [Predicted basophilic adenoma subsequently verified.]

A married woman, 36 years of age, first came under observation in November, 1929. For eighteen months, striking changes had occured in her appearance. She had gained 33 pounds (15 Kg.) in weight and been obliged to shave because of a growing beard. At the same time there had been loss of hair on the scalp. Menstruation, from the age of 11 always scanty and irregular, had ceased completely for five months. She complained of pains in the lower spine.

Fig. 3 (case 13).—Adiposity (chiefly abdominous) of Dr. Bauer's patient.

Status Praesens.—The patient was adipose; the height was 155 cm. (5 feet 1 inch), the weight, 71.5 Kg. (157 pounds), and the extremities were disproportionately thin for her face and trunk (fig. 3). The skin was pigmented, coarse, dry and furunculosed, and the extremities showed cutis marmorata. On both sides of the abdomen were prominent veins [sic]. Hypertrichosis was present on lip, chin, cheeks, forearms, sacral region and breasts. There was diffuse alopecia of the scalp. The round "moon-face" (fig. 4) was cyanotic and the conjunctivae were injected.

The pulse ran between 104 and 120; the blood pressure varied from 175/110 to 185/120. The urine contained traces of albumin with no demonstrable renal elements; renal function was normal. The blood showed 5,290,000 erythrocytes; hemoglobin, 93 per cent (Sahli); leukocytes, 12,500 with 78 per cent polymorphonuclears. Blood sugar, 116 mg. per cent.; nitrogen, 34 mg. per cent; cholesterol, 195 mg. per cent. A sugar tolerance test showed an exceedingly low threshold to 100 grains of dextrose with prolonged hyperglycemia increasing to 282 mg. per cent in two hours with persisting alimentary glycosuria for forty-eight hours. The basal metabolic rate was +28.7 per cent repeated.

The case was looked on as an example of overfunction of the adrenal system. Pyelograms were taken and showed an enlarged renal pelvis on the right with normal calices.

On December 16, an exploratory operation disclosed no palpable abnormality of right kidney or ureter. The right ovary was found to be slightly enlarged and was removed. The patient developed erysipelas and died ten days later.

Autopsy (Professor C. Sternberg).—This "gave not the slightest explanation for the peculiar disease." The fat deposits in the abdominal walls, omentum and mesentery were striking. The hypophysis was of normal size and without change. The thyroid gland was not enlarged. Both suprarenal capsules were thin and revealed a small zone of colloid. The pancreas was normal. The left ovary was the size of a cherry, the surface being nodular. The histologic observations were essentially negative, apart from the left ovary, which had been removed at operation. This showed a small faintly yellowish nodule, of hemp-seed size, which was thought possibly to represent aberrant adrenal cortex.[4]

On the basis of this minute lesion in the ovary, taken in conjunction with what information the literature afforded, the case was looked on by the author as an expression of adrenal overfunction. In response to a letter of enquiry, Professor Sternberg was kind enough serially to cut the pituitary body, which fortunately had been preserved. To his expressed surprise, no less than to my gratification, the predicted lesion was disclosed. Though small in size, it shows a typical papillary basophilic adenoma (fig. 5).

Dr. R. C. Moehlig of Detroit has sent me the account of an equally convincing but unreported case in which he had recognized the basophilic nature of the lesion and its probable relation to the syndrome in question before my paper was published. The patient was a woman, aged 44, so that the malady is not restricted, as had been assumed, to comparatively young persons, and there probably are many subvarieties of it depending on the extent to which the subsidiary endocrine organs participate in the symptom complex.

In the following example the symptoms, as in case 5 and case 8 of the previous report, had dated from preadolescence. The lesion has not been histologically verified, but its nature nevertheless may be safely predicted from the general information so far acquired.[5] The case is important in that it is the first (with the possible exception of case 9) in which roentgenologically demonstrable changes in the vertebral bodies have been detected, accounting for the loss of height and the upper thoracic kyphosis. It is also the first case in which an increased elimination of calcium has been detected.

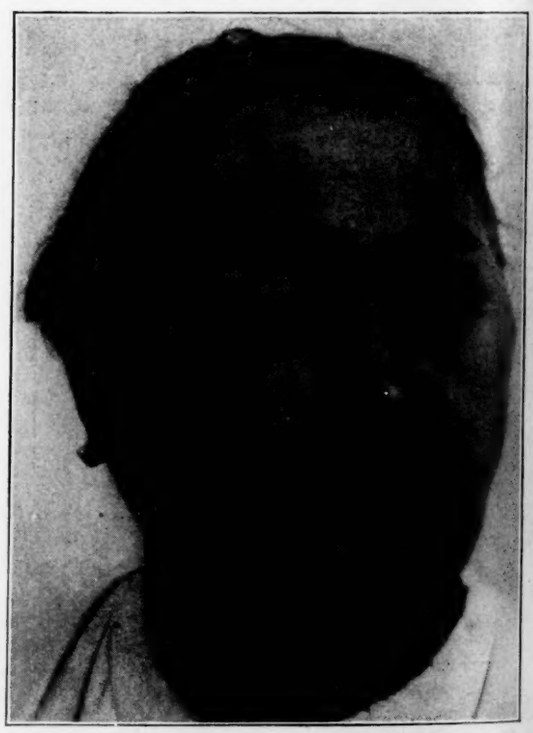


Fig. 4 (case 13).—Hirsute, cyanotic face and injected conjunctiva. (Courtesy of Dr. Bauer.)

CASE 14 (P. B. B. H. surgical number 40886).—*Precocious adolescence followed by amenorrhea. Hypertrichosis, acrocyanosis and purplish striae. Vascular hypertension. Recent convulsions. Roentgenologic evidence of vertebral softening with collapse. Increased calcium elimination. Radiation of pituitary body. Marked symptomatic improvement.*

4. The bones unfortunately were not made a particular object of study, though it has been learned from Dr. Bauer that the patient had a cervicodorsal kyphosis ("runde Rücken") such as is commonly seen in fat people.

5. For calling my attention to this case, acknowledgment is due to my medical colleague Dr. Reginald Fitz; to Dr. L. F. Davenport, the medical intern, I am indebted for his record and preliminary studies made before the young woman was transferred to the surgical service.

Alice D., aged 15, was admitted to the Brigham Hospital, March 29, 1932, chiefly because of what was taken to be an infected pilonidal sinus. When about 8 years of age, following an appendectomy, she acquired a voracious appetite and began to grow fat. At 10 years of age, normal menstruation set in with early acquirement of secondary sex characters. In 1927, because of recurrent attacks of sore throat, a tonsillectomy had been performed. Her weight at that time was 103 pounds, height 50 inches. In 1928, she weighed 122 pounds; in 1929, 137 pounds; and in 1930, she was said to weigh 170 pounds, which under a restricted diet was reduced to 137 pounds. In April, 1930, her previously normal menstrual periods abruptly ceased. Her basal metabolic rate at the time was reported as —28 per cent.

For the two years prior to admission she had been under the care of a local physician. She was once put on a pituitary regimen, which apparently aggravated her symptoms. In December, 1931, she had a sudden convulsion on the street and was taken home unconscious. She subsequently attended the ambulatory clinic of the Brigham Hospital, where she was found to have a basal metabolic rate of —33 per cent; she was given thyroid extract and referred to the obesity clinic. On February 29, a month before admission, she again had another convulsive attack and the local doctor found glycosuria.

Examination.—This showed a cooperative and intelligent girl complaining of headache, lumbar backache, and an ischiorectal infection. Her height was 5 feet (152 cm.); she weighed on admission 132 pounds (60 Kg.). There was moderate adiposity, chiefly of face, neck and trunk (fig. 6). She was definitely round-shouldered. Her face was puffy and plethoric with pronounced hirsuties of lips, cheeks and chin, associated with definite thinning of the hair of the dandruffy scalp. There was also a fine growth of hair over thighs, arms, legs and back. The skin was dry, dusky and scaly, and there was marked acrocyanosis. Numerous short purplish striae were present, radiating from the groins onto the abdomen, and there were many transverse reddish striae over the legs.

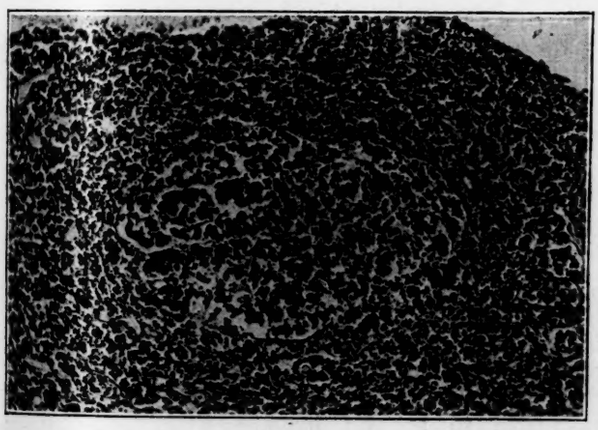


Fig. 5 (case 13).—Small basophilic adenoma. (Courtesy of Dr. Sternberg.)

The blood pressure averaged 140/110, the highest registration being 180/110. The basal metabolic rate was —22 per cent. She was found to have a low sugar tolerance, 100 cc. of dextrose leading to a hyperglycemia of 212.7 mg. per cent after sixty minutes. Her fasting blood studies showed 4,800,000 erythrocytes; 9,400 leukocytes with 87 per cent polymorphonuclears; hemoglobin was 80 per cent; nonprotein nitrogen 30.7 mg. per cent; calcium, 12.1 mg. per cent; total protein, 5.4 mg. per cent; cholesterol, 173 mg. per cent.[6]

Roentgenologic studies showed a peculiar mottled atrophy of the bones, particularly apparent in the cranial vault. The dorsal kyphosis was associated with compression of several of the vertebral bodies, more marked in the fifth and seventh. There were six lumbar vertebrae, two of them, the fourth more particularly, showing definite compression (fig. 7). In contrast to the general appearance of atrophy, the margins of the vertebral bodies appeared eburnated. The epiphyses of the long bones were normal for her age but appeared denser than normal. The humeri and radii showed mottling and enlargement of the trabeculae and thinning of the cortical portion of the bones. Similar changes were present in the ribs. The heart on measurement was definitely enlarged.

Fig. 6 (case 6).—Configuration of stoop-shouldered, abdominous patient with hirsuties, cyanotic extremities, and purplish striae.

In view of the apparent decalcification of the bones and the estimated increase in blood calcium, my colleague Dr. J. C. Aub kindly offered to investigate this matter in greater detail. Accordingly, April 10 she was transferred for ten days to the Huntington Memorial Hospital, where the previously estimated increase in blood calcium was not substantiated, the serum calcium being 9.8 mg. per cent and serum phosphorus 2.7 mg. per cent. However, a surprising increase in calcium output was found.

Dr. Aub's data are given in the accompanying table and his personal note follows:

She was given a neutral diet containing only 100 mg. of calcium daily. After a preliminary equilibrium was established, we studied her excreta for two periods of three days each. She showed herself to be in nitrogen and phosphorus balance. Her calcium output, however, was far in excess of our normal figures for this diet, which are 186 mg. of calcium in the urine and 386 mg. in the feces per period. Therefore, it is clear that this patient, who ought to have distinctly lower than normal figures because she is a growing girl, is excreting far too much calcium by urine. This abnormal urinary excretion cannot be explained by an acidosis, for the titratable acidity and ammonia in the urine were normal. With her low basal metabolism, it certainly cannot be explained by an overactive thyroid. Because of her low blood phosphorus a vitamin D deficiency is suggested, but I think it far more likely that she has mildly overactive parathyroid secretion.

*Calcium Phosphate and Nitrogen Elimination of Case 12**

Period	Volume of Urine	Titratable Acidity, Cc. N/10	NH_3 Cc. N/10	Calcium				Phosphate					Nitrogen	
				Urine, Gm.	Fecal, Gm	Total, Gm.	Intake, Gm.	Urine, Gm.	Fecal, Bm.	Total, Gm.	Intake, Gm.	Balance, Gm.	Urine, Gm.	Intake, Gm.
I a	1,600	—58	272	0.65	0.27	0.92	0.30	0.87	0.47	1.34	1.86	+0.52	19.2	24.2
b	1,300	—16	327											
c	1,340	13	240											
II	4,510	....	...	0.84	0.48	1.32	0.30	0.75	1.08	1.83	1.86	+0.03	18.4	24.2

* Kindness of Dr. Aub.

6. The patient's sister, used as a control, showed blood cholesterol of 110 mg. per cent.

In the course of these tests it was observed that an abnormal amount of fat was being excreted, and though this deserved more thorough study the patient was becoming restive over her prolonged hospitalization and she was readmitted to the Brigham Hospital.

On April 21, 23, 25 and 26 she was given a series of high voltage roentgen treatments, with prompt improvement in her general condition. Her previous complaints of headache, lumbar pains and general indisposition which kept her in bed quickly subsided. She became alert, interested in her surroundings, and soon was engaged in helping the nurses in their ward work. She remained under observation until May 7, no striking change in her constitutional symptoms having been observed other than an apparent tendency to a lowered blood pressure, and a definite diminution of her former plethora both of face and extremities.

These further notes serve to increase the percentage of proved basophil adenomas in association with the polyglandular syndrome under discussion. Instead of only three out of eight cases that had been examined post mortem, there are now six out of eleven (including Dr. Moehlig's patient) in which a pituitary basophil adenoma has been disclosed. The pituitary body in two other cases was said to be normal, but in the absence of serial sections this mere statement is no longer convincing.

Fig. 7 (case 14).—Lumbar spine, showing osteoporosis of bodies, chiefly affecting the fourth lumbar.

When one takes into consideration not only the presumed infrequency of adenomas of this type but their small size, whereby they easily escape detection, and couples this with the fact that chief attention has been paid to the condition of the adrenal glands in all the autopsies heretofore conducted, the fact that a basophil adenoma has been found in half of the patients who have succumbed to this peculiarly unmistakable malady must be something more than coincidence.

POSTSCRIPT.—The bearing of basophilism on states of vascular hypertension is in need of further study. Whereas the hypopituitarism of most chromophobe adenomas is usually associated with a subnormal blood pressure, there have been four examples out of some 200 recorded cases in which there was an unaccountable vascular hypertension. A review of the old clinical histories of these patients, in the new light shed on the syndrome of basophilism, reveals that one of them at least had unmistakable pituitary basophilism. What is more, a patient under observation at the present time with long-standing, so-called essential hypertension associated with moderate adiposity and cutis marmorata appears to have been definitely benefited by irradiation of the pituitary body.

ASTHENOPIA, A PSYCHONEUROSIS AND A MEDICAL RESPONSIBILITY

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The forty-one volumes of section transactions contain but six papers on the relationship of defects of the visual system to the psychoneuroses, and two of them were presented by guests who were not ophthalmologists. Fourteen other papers give incidental attention to asthenopia. The subject has been neglected to the detriment of physician and patient alike.

It is my purpose in this paper to define asthenopia, to distinguish it from simple eyestrain, to identify it as a psychoneurosis and to establish it as a medical responsibility. Its management requires a searching history, a thorough examination and a working knowledge of the psychoneuroses.

STATEMENT

All students at the State University of Iowa who had been referred by the department of student health to the eye clinic during the second and third months of the first semester of the school year 1931-1932 were listed consecutively. The clinical records that dealt with completed refractions of patients from 17 to 26 years of age were chosen; those that showed fundus or field changes, high myopia, strabismus or other organic lesions were excluded. Eighty cases of ametropia and heterophoria remained for study. No significant disorder of accommodation was found.

Tables were made to ascertain if patients could be classified to show relationships between specific complaints and specific visual defects. Too many contradictions and discrepancies were encountered. The study was continued to ascertain if asthenopia might be a manifestation of the reactions of the nervous system to fatigue, with its unpleasant and annoying consequences, and if it can be classed as a psychoneurosis.

Hart [1] stated that "However desirable the merging of psychopathology in general pathology may be held to be, it must be admitted that . . . there is a field in which psychology can aid our understanding and our practice in a way not yet possible for physiopathology." He also said that "In therapeutics it is justifiable to act on hypotheses" . . . because therapeutic result is the goal of the art of medicine.

Science investigates phenomena first by collecting and recording facts; second, by arranging the facts into series and sequences, and third, by discovering a formula to account for or control the series or sequence of facts and to predict their reappearance. The formula may be phenomenal, to account for demonstrable facts such as the movement of planets in their orbits, or conceptual, to explain facts of experiment such as the wave theory of light, or facts of experience such as reflex pain. A concept requires the assumption of hypothetic entities which are not demonstrable; but as Hart said "The validity of a scientific conception is measured by the service it is able to perform in the understanding, the prediction and the control of the facts of experience."

Three of the students had no complaints, fourteen complained only of poor vision, and sixty-three had one

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Read before the Section on Ophthalmology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 13, 1932.

1. Hart, Bernard: Psychopathology, New York, The Macmillan Company, 1927, p. 93.

or more symptoms, such as smarting, burning and itching of the eyelids, tired feeling in the eyes, transient blurring of vision, diffused or localized superficial headaches, lacrimation, general feelings of fatigue, drowsiness, diplopia, dizziness and nausea that followed close work or were intensified or aggravated by it. The symptoms had no demonstrably systematized relation to the visual defects. Patients with comparable complaints had dissimilar defects; comparable defects were accompanied by dissimilar complaints or by no complaint.

Can psychology reconcile the apparent contradictions and discrepancies that were encountered when an attempt was made to account for the state of asthenopia on a demonstrable basis, and can a conceptual formula provide logical grounds for the classification of asthenopia as a psychoneurosis?

PSYCHOLOGY

The instinct of self-preservation is inherent in all persons, and from it are derived impulses that cannot be alienated from life; it is independent of volition, and a person is usually unaware of its existence. Organized society has set up arbitrary standards for the regulation of the conduct of its members. These standards and the usages practiced for their maintenance and operation constitute the social environment of the individual. Ages ago the herd instinct welded individuals into nations, yet no refinement of civilization has weakened that older, more primitive, more inherent and more essential instinct of self-preservation that drives man to engage in competition.

The impulses from the older self-preservation instinct occasionally rise above those from the newer herd instinct, and then the individual is in conflict with the herd and what may be the best interests of the herd. The war psychoneuroses constitute an example. The emotionally stable person adjusts himself to such situations through repression, or by burying in his unconscious mind the unpleasant and annoying experiences of the conflict, and through sublimation, or by directing his energies along useful and acceptable channels. The emotionally unstable person who fails in repression and sublimation must find adjustment on a lower and more primitive level.

Rationalization is a process of adjustment on a low level of emotionality; it consists of knowingly or unknowingly assigning grounds for his conduct that satisfy the individual. Logical reasoning is incompatible with it. No argument can prevail against it. One may rationalize a convenient headache to be excused for not calling on a bereaved friend, going to work or preparing a recitation, or an extenuating explanation for behavior that is not countenanced by others. The mechanism is a protective device for evading personal responsibility. "She gave me of the tree." "The serpent beguiled me."

We satisfy our desires in one of two ways; we get what we want or we imagine we have it. The first is reality, and the second is phantasy; either satisfies in a psychologic sense, for attainment is the goal. The fundamental problem of life is that of adjustment to environment, the conflict between personal inclinations or desires and the conditions that comprise the environment. The nervous system brings sensory data into consciousness; if the resulting experience is unpleasant, it must be repressed into the unconscious mind or adjustment cannot be made.

Functional mental disorders may be regarded as failures to effect adjustments that will be in harmony with the environment. Failures can be attributed to an inherent nervous instability or an endogenous psychopathic predisposition; the individual lacks the ability to deal satisfactorily with the realities in life. Something is lacking in the make-up; perhaps it is in an arrest of development or a maldevelopment. Such a person is always handicapped. Stigmas of degeneration sometimes seem to predict the probability of the failure of nervous stability under stress. Those that interest ophthalmologists include ametropia, heterophoria, strabismus, color, day and night blindness, albinism, nystagmus, etc.

A psychopathic or neuropathic predisposition may be either latent or manifest. Contributing factors that often operate under stress to convert a latent into a manifest condition are the periods of youth and adolescence—the time when dementia praecox usually begins, malnutrition, insufficient sleep, exhaustion as from overstudy, hardships, and emotional strains as worry over finances or school work, anxiety to make passing grades, love affairs, bereavements and so on. Low states of vitality due to organic diseases or physical causes are also predisposing factors of importance.

Each nervous organization has its limits of endurance; when neural equilibrium is unstable maladjustments are prone to occur, and these may lead to actual mental disease. The symptoms that indicate the presence of these defects may be interpreted as manifestations of compromises in the conflict between unconscious, instinctive or involuntarily directed tendencies and conscious, rational or volitionally directed tendencies. A person develops symptoms inversely to his ability to meet situations and effect high level adjustments; hence, symptoms are evidences of defense.

PSYCHONEUROSES

The psychoneuroses form a group of disorders in which mental forces or ideas bring about various mental and physical symptoms. They are adaptive reactions of the nervous system whenever the organism needs to substitute for its normal behavior something that is or resembles a disease. They are an expression of an automatic defense mechanism that protects a person from experiences that tend to weaken him or imperil his existence. The effect is to convert instinctive reactions into abnormal experiences which appear as symptoms or symptom groups. The psychoneuroses serve the individual's needs.

Lunt and Riggs [2] defined the psychoneuroses as disorders of the nervous system that give rise to recognizable physical signs and symptoms without a demonstrable physical cause. They added that constitutional factors of sensitiveness and suggestibility enter into the make-up of the psychoneurotic person. When sensitiveness is misunderstood and mismanaged, it becomes hypersensitiveness.

Emerson [3] regarded a psychoneurosis as not necessarily so much a disease as a handicap due to a mental or physical defect which leads to symptoms that the patient accepts as a part of his life and that may, because of the fatigue and suffering produced, result in nervous and mental breakdown. Lautenbach [4] believed that the neurotic element is often only the reflex condition brought about by a train of pathologic

2. Lunt, L. K., and Riggs, B. A. F.: The Ophthalmologist and the Psychoneuroses, J. A. M. A. **83**: 1968 (Dec. 20) 1924; Tr. Sect. Ophth., A. M. A., 1924, p. 65.

3. Emerson, C. P.: The Ophthalmologist and the Physician, J. A. M. A. **72**: 1817 (June 21) 1919; Tr. Sect. Ophth., A. M. A., 1919, p. 28.

4. Lautenbach, L. J.: The Use of Full Correcting Cylindric Glasses in All Cases of Astigmatism, J. A. M. A. **30**: 244 (Jan. 29) 1898; Tr. Sect. Ophth., A. M. A., 1897, p. 312.

circumstances. Gould [5] noticed that signs of mental deterioration frequently appear after years of suffering from asthenopia.

It must be remembered that normal persons have some psychoneurotic traits and that psychoneurotic persons have many normal traits.

ASTHENOPIA

Asthenopia is a syndrome in which the visual discomforts that attend prolonged close work are accompanied by feelings of fatigue and reflex manifestations remote from the eye. It can be classed as a psychoneurosis because of its mechanism and symptomatology. The term eyestrain may be reserved for those cases in which visual discomforts are brought on by prolonged close work, are limited to the eyes, and promptly disappear when close work is discontinued. Panoramic headaches are not under consideration.

An emmetropic person with good accommodative power has the advantage of sharp retinal images to assist in stabilizing binocular fixation at close work. An ametropic person lacks this advantage, and is only partially compensated when made emmetropic by correctly fitted lenses; he usually has another disadvantage in his accommodative sensitivity or power.

In hyperopia this power is generally too great, and continuous use of the eyes is apt to cause accommodative spasm with excessive convergence and blurring of images. It is an artificial myopia; both far point and near point advance toward the eye. The spastic condition brings on fatigue prematurely. In myopia the power is generally too weak, the accommodation soon fails, the near point gradually recedes from the eye, and there is no ocular compensating mechanism; because of early fatigue the convergence relaxes and there is a blurring of images, or even diplopia. To continue at close work under either circumstance requires the expenditure of greater and greater amounts of energy. There is a rapid accumulation of fatigue with its train of unpleasant and annoying experiences.

Either emmetropic or ametropic persons may have some sensitiveness, weakness or instability of the nervous system, by reason of which they are subject to feelings of fatigue consequent to continuous or prolonged use of the eyes for close work.

Heterophoria is a weakness in coordinating ability and stability of the eye-directing muscles; the result is a tendency of the fixation axes to fail to intersect each other at the exact distance and position of the object of regard. This weakness may cause diplopia unless it is avoided by an unusual expenditure of nervous and muscular energy.

Precise intersection of fixation axes is effected and maintained by the operation of a neural reflex arc which accomplishes fusion of cortical images. Retinal images act as peripheral stimuli to excite sensory impulses to the cerebral centers where they are transformed into motor impulses to the extra-ocular muscles. If the retinal images are identically situated a minimum of energy is expended, but if these images are not so situated, and the patient has fusion sense, energy is expended in a greater amount, and the amount corresponds directly to the range of movement required to place the images on identical or corresponding points of the retinas so that the fixation axes can correctly intersect each other. The further expenditure of energy depends on the amount necessary to maintain or stabilize fixation. The amount of available energy varies among individuals.

Heterophoria is not caused by ametropia alone; it is often found in emmetropic persons. Yet ametropia may increase the amount of an existing heterophoria while fatigue is accumulating.

An ametropic person, because of more or less blurred retinal images, must maintain a greater intensity of fixation in close work than the emmetropic with sharp retinal images; the necessity for exactness of fixation over continuous or prolonged periods of time induces fatigue earlier in the ametropic than in the emmetropic person, provided the nervous systems of the two are equally stable or unstable. The myopic person may have sharp retinal images at close work, but to maintain convergence requires intent fixation; the effect is the same.

The correction of ametropia serves to remove the necessity for intense exact fixation; it raises the ability to resist the unduly rapid accumulation of fatigue and thus aids in stabilizing the nervous system by reducing the rate and amount of its expenditures. In time, the tendency to horizontal deviations may be reduced to amounts that do not cause discomfort, and tendencies to vertical deviations are often favorably influenced.

Fatigue consequent on neural or muscular exercise operates as an instinct for protecting a person against mental or physical exhaustion, and that instinct is satisfied only with rest. The time of onset and the rate of accumulation of fatigue are influenced to some extent by interest in or distaste for the work on which the person is engaged. Insufficient food or sleep has an adverse influence on endurance. Mental work requires close attention and also exercise of the muscles of the eyes, neck, hands and arms, as well as those of the body in maintaining posture.

Few students can do the work required of them without becoming subject to fatigue, and many of them prematurely so. Continuous prolonged application to the preparation of lesson assignments induces a group of sensations which are called "feelings of fatigue;" they are of an unpleasant, annoying character and are progressive during semester examinations. The sensations include numbness, soreness and aches or pain in the eyes, orbits or head, and less frequently in parts of the body remote from the eyes. Vascular discomforts, such as sensations of heat, burning, itching and scratching of the eyelids, are common. Glandular activity is exhibited in increased lacrimation. Visceral discomfort is sometimes indicated by nausea.

When fatigue develops there is an insistent desire to rest. If work is continued in spite of fatigue, the attention lags and must be forced. The experience becomes so unpleasant that the unconscious mind rebels and develops a system of emotional reactions for the protection of the individual. It is the instinct of self-preservation, the protective reaction of the nervous system.

Ametropia, disorders of accommodation in close work, heterophoria, evidence of a sensitive, weak or unstable nervous system and of fatigue constitute the facts that have been collected and recorded in relation to asthenopia. The first step in the scientific procedure is complete. The facts have been arranged as required for the second step. Ametropia, disorders of accommodation and heterophoria are demonstrable phenomena that can be measured at the time of examination, while a sensitive, weak or unstable nervous system is hardly a demonstrable entity that can be measured.

5. Gould, G. M.: The Statistics and Lessons of Fifteen Hundred Cases of Refraction, J. A. M. A. **17**: 432 (Sept. 19) 1891; Tr. Sect. Ophth., A. M. A., 1891, p. 289.

Since there are many patients who have demonstrable ametropia, disorders of accommodation and heterophoria but no asthenopic symptoms, there is justification for the assumption of a concept to account for the presence of such symptoms in patients who are otherwise apparently similar. For the third step in the scientific procedure it can be stated that without sensitiveness, weakness or instability of the nervous system there will be no feelings of fatigue from such employment of the eyes in close work as is demanded of the average student, and without feelings of fatigue there will be no asthenopia. The prediction of reappearances will be discussed presently.

The literature of the section supports this concept.

White, discussing Jones's [6] paper, said he had noticed the progressive incidence of eye defects among Negroes in the twenty-five or thirty years preceding 1908. He attributed the change to education and other environmental factors that demand close eye work. Pyle, discussing the same paper, referred to the report concerning the increase of refractive errors among students at the Carlisle Indian School as they advanced in their studies. He thought that the progressively increased demands for close eye work brought on symptoms of asthenopia and that careful examinations disclosed previously unknown errors.

Emerson remarked the frequency with which asthenopic headaches begin in the period of adolescence and young adult life with close eye work. Stevenson and Walker [7] observed that many young persons suffer distress after continued close work, but experience no difficulty in ordinary use of the eyes. It is the added strain in near work that distresses and injures, especially if there is impairment of the general nervous system. Gould [5] stated that setting the eyes to unusual tasks diminishes resisting power.

Derby [8] declared that the use of the eyes should be a subconscious function. When it enters the consciousness the patient goes to an ophthalmologist to know the reason why. Woods [9] thought that fatigue symptoms might be due to special susceptibility of the eyes to physical or psychic irritation; when a patient insists that he cannot do near work on account of his eyes, and no explanation can be found in the eyes, a remote cause must be sought. Gould [10] believed that asthenopia due to heterophoria is innervational in origin. Murrell [11] often found heterophorias among psychoneurotic persons with nervous symptoms! Carpenter [12] noted the association of hyperphoria and general reflex derangements of the nervous system.

Starkey [13] observed the relation of latent errors of refraction to asthenopia. Gould [14] urged that a slight uncorrected ametropia might be the cause of strange and serious reflexes and results, and that even emmetropia in any hard pushed eye worker might operate as a functional disease and require treatment.

Emerson considered vision a neuromuscular function that requires an expenditure of nervous force. Hobby [15] concluded that asthenopia indicates a state of inadaptability to environment, so it is the individual and not the eyes alone that is asthenopic. Derby recognized that many patients use the eyes as convenient avenues of escape from unpleasant situations (rationalization).

Theobald [16] reported cases of reflex aural neuroses caused by ametropia and heterophoria.

Manifestations of psychoneurotic traits and tendencies can be predicted with convincing frequency among young persons who have defects of the visual system. United States Army Regulations [17] for the examination of candidates for flying training specify standards for the visual functions. The object of the examination is to select for training for pilot duty persons who are both physically and mentally qualified to fly a ship safely under conditions of stress and fatigue. Because of their significance as indicators of muscular, neural and mental sensitiveness, weakness or instability, candidates are disqualified on the following visual defects: [18]

1. Central visual acuity of less than 6/6 or J.1, or of 6/6 or J.1 with a minimum true or cycloplegic correction of more than 1 D. in any meridian.
2. Distant esophoria of more than 10 centrads, or of more than 4 centrads when associated with more than 1 D. of hyperopia.
3. Distant exophoria of more than 5 centrads, or of more than 2 centrads when associated with an angle of convergence of less than 50 degrees.
4. Hyperphoria of more than ½ centrad.
5. Near exophoria of more than 12 centrads; from 3 to 6 centrads is considered normal.
6. Prism divergence of less than 4 centrads or of more than 15 centrads, or of more than 9 centrads when associated with an angle of convergence of less than 50 degrees.
7. An angle of convergence of less than 40 degrees, or of less than 50 degrees when associated with a true hyperopic correction of more than 1 D., or with a prism divergence of more than 9 centrads.

Flight surgeons recognize not only the manifest and inherent or latent hazards attributable to defects or incompetences of the visual functions themselves, but also the significance of such defects and incompetences in the general physical and mental organization of a person. The strains and stresses incident to flying exhaust energy out of proportion to the physical effort involved in flying; stability is taxed accordingly. Persons with defects expend energy more rapidly and recuperate less promptly than do those without defects, and are therefore more apt to become stale and unfitted for flying. Staleness is not exhibited so much in a general physical deterioration as it is in a disturbance of judgment in meeting occupational situations; that is, the interpretation is neural or mental maladjustment.

In staleness the flyer must drive himself in the performance of his duties; he accomplishes this by the aid of more powerful and more frequent neural impulses. The process continues and expands until the nervous system fails or rebels, and the mind, knowingly or unknowingly, seeks relief through protective reac-

6. Jones, C. P.: A Study of One Hundred Refraction Cases in Indians Fresh from the Plains, J. A. M. A. **51**: 308 (July 25) 1908; White, J. A., and Pyle, W. L., in the discussion, p. 311; Tr. Sect. Ophth., A. M. A., 1908, p. 205.
7. Stevenson, M. D., and Walker, E. M.: Prescribing of Lenses for Close Work, J. A. M. A. **55**: 110 (July 9) 1910; Tr. Sect. Ophth., A. M. A., 1910, p. 196.
8. Derby, G. S.: Ocular Neuroses, J. A. M. A. **95**: 913 (Sept. 27) 1930; Tr. Sect. Ophth., A. M. A., 1930, p. 305.
9. Woods, Hiram: Ocular Neurasthenia, J. A. M. A. **49**: 211 (July 20) 1907; Tr. Sect. Ophth., A. M. A., 1907, p. 306.
10. Gould, G. M.: Incurable Eyestrain, J. A. M. A. **47**: 734 (Sept. 8) 1906; Tr. Sect. Ophth., A. M. A., 1906, p. 279.
11. Murrell, T. E.: Some Practical Experiences with Muscular Anomalies, J. A. M. A. **21**: 642 (Oct. 28) 1893; Tr. Sect. Ophth., A. M. A., 1893, p. 177.
12. Carpenter, J. T.: A Clinical Study of Hyperphoria, J. A. M. A. **30**: 198 (Jan. 22) 1898; Tr. Sect. Ophth., A. M. A., 1897, p. 261.
13. Starkey, H. M.: Latent Astigmatism, J. A. M. A. **25**: 853 (Nov. 16) 1895; Tr. Sect. Ophth., A. M. A., 1895, p. 281.
14. Gould, G. M.: A Case of "Mathematically-Perfect Eyes," J. A. M. A. **31**: 632 (Sept. 17) 1898; Tr. Sect. Ophth., A. M. A., 1898, p. 28.
15. Hobby, C. M.: Asthenopia, J. A. M. A. **23**: 377 (Sept. 8) 1894; Tr. Sect. Ophth., A. M. A., 1894, p. 123.
16. Theobald, Samuel: Reflex Aural Neuroses Caused by Eyestrain, J. A. M. A. **53**: 112 (July 10) 1909; Tr. Sect. Ophth., A. M. A., 1909, p. 104.
17. Army Regulations, 40-110, Medical Department, Standards of Physical Examinations for Flying, Feb. 25, 1931, pp. 6-14.
18. These do not apply strictly in the reexamination of rated pilots.

tions such as eyestrain, headache, neurasthenic heart, indigestion, attacks of diplopia, dizziness, nausea or fainting, or any symptom that may operate to relieve the flyer of duty. There is a conflict between inclination or desire and discipline or duty. If the pilot is unable to adjust himself psychologically, he is disqualified for flying. He has exposed an instability that was not detected in the examination and that only became apparent under the stresses of training.

Considered as candidates for pilot training in the United States Army Air Service, sixty of the eighty patients at the university are disqualified on from one to five defects of the visual functions. These figures, I understand, are roughly comparable to those found at the training school for flight surgeons. Of the twenty who qualify visually, two are on the borderline and eighteen are within limits of normal muscle balance.

MANAGEMENT

The following references and comments apply to young persons, the class that has been considered in this discussion. Technical details of treatment are omitted.[19]

Derby felt that ophthalmologists face a great responsibility when these patients come to them. He believed that a searching history and a thorough examination are essential to success; the comfort, efficiency and happiness of the patient may depend on the way in which we interpret and seek to explain the psychologic factor.

Emerson advised that patients should be examined as individuals and not as optical mechanisms to be fitted to a test chart; that it is more important to help patients to see comfortably than to help them to see clearly; that lenses should be fitted to a patient's nervous system as well as to his eyes; that all static ametropia be ascertained before planning to correct any of it, and that a patient should not be hurried while being examined.

Starkey [20] believed that low ametropic errors should be corrected. Stevenson and Walker thought the distant correction should be worn constantly for several weeks, when, if all the symptoms were relieved, the lenses might be dispensed with except for close work. Thomas [21] insisted on the strict adoption of a 13 inch reading distance. Conner [22] thought the waste of nerve energy in close work can sometimes be prevented by correcting the near exophoria with prisms; Savage [23] suggested that the lenses be decentered.

Prisms in hook-fronts for wear while at close work only are often of value until symptoms from near exophoria are relieved.

Jackson [24] observed the action of mild cycloplegics in quieting reflex or remote symptoms.

Many of these sensitive patients fail to receive the relief they desire because of improper illumination while at close work. Lighting equipment should be arranged to avoid glare and to divert reflections from paper, nickeled typewriters, polished furniture, etc., away from the face or eyes and yet furnish abundant illumination. Daylight glass or inside-frosted bulbs are desirable.

Hobby said that while the correction of visual disorders was of great benefit, complete relief depended on adjustment to environment. Carpenter believed that a knowledge of general nervous disease is absolutely essential in the management of these conditions, and Derby lamented that these cases are ordinarily handled with less skill and judgment than they should be.

Derby probably meant indifference rather than incompetence. Long ago Charcot warned the medical profession that more mistakes are made by not examining than by not knowing. Shall it be said that physicians react as psychoneurotic persons toward refraction, that they cannot effect a high level adjustment in the conflict between obligation to and disinclination to examine thoroughly and study these miserable asthenopic sufferers? How can a physician rationalize a simple trial case test under cycloplegia—or without it—into an honest service? Is it egotism, conceit or indifference that lets any one think he can give a minimum of professional talent and obtain a maximum of therapeutic result? Hysteria is not a legitimate diagnosis when it is based solely on failure to help the patient!

No asthenopic patient should be told "There is nothing the matter with you; forget it!" There *is* something the matter with him; he *can* not forget it; he *will* not forget who told him! Thorough questioning will reveal the direct and contributing causes of symptoms. A carefully planned and executed examination will disclose the nature and extent of ocular and visual defects; it will likewise impress the patient that he is being taken seriously and that his case will be understood.

Lunt and Riggs said it is only by our better understanding and by adopting a dynamic attitude that recognizes the curability of the functional nervous disorders that physicians can fulfil their opportunities and obligations.

Hobby protested against the treatment of asthenopia by those who see in it only a disorder of the looking machine; these conditions fall within the province of the physician and are entitled to his thorough scrutiny. Emerson observed that optometrists treat the eyes as optical instruments and claim to do nothing more, and that many physicians do nothing more! He then said that refraction is the highest expression of the ophthalmologist's art, not to be handed over to a junior as a necessary evil to be endured.

When ophthalmologists consistently excel in the relief given to asthenopic patients there will be no question of who should refract.

CONCLUSION

What progress has the section made in the study of asthenopia and its management in the last forty-one years? In 1891, Gould closed his address with this paragraph:

> Refraction is a science and an art in intimate union and requires as much patience, delicacy of perception, fineness of judgment and discrimination as any scientific work in the world. In relation to it there are vast fields of inquiry the wisest have hardly begun to explore. The amount of human misery caused by these ocular defects is appalling, and if the prevention and relief of that misery be the motive of scientific medicine, no branch is more important or demands higher powers of mind than that of ophthalmology—and nine-tenths of modern ophthalmic practice consists of refraction!

19. See Dr. Green's paper at this meeting.
20. Starkey, H. M.: Are Low Degree Lenses Merely of Mythical Value? J. A. M. A. **23:** 367 (Sept. 8) 1894; Tr. Sect. Ophth., A. M. A., 1894, p. 87.
21. Thomas, C. H.: Vicious Reading Distance as a Cause of Asthenopia, J. A. M. A. **30:** 243 (Jan. 29) 1898; Tr. Sect. Ophth., A. M. A., 1897, p. 310.
22. Conner, Leartus: Heterophoria as a Cause of Acute Rhinitis, Loss of Smell and Tinnitus Aurium, J. A. M. A. **19:** 306 (Sept. 10) 1892; Tr. Sect. Ophth., A. M. A., 1892, p. 227.
23. Savage, G. C.: The Decentering of Lenses for Near Work, J. A. M. A. **39:** 1294 (Nov. 22) 1902; Tr. Sect. Ophth., A. M. A., 1902, p. 411.
24. Jackson, Edward: The Value of Homatropin in the Diagnosis of Ametropia, J. A. M. A. **27:** 1096 (Nov. 21) 1896; Tr. Sect. Ophth., A. M. A., 1896, p. 239.

ABSTRACT OF DISCUSSION

DR. WALTER B. LANCASTER, Boston: In this brief discussion I wish to stress the fact that negative evidence (absence of uncorrected errors of refraction) is not enough for a diagnosis of psychoneurosis. There must be positive evidence, such as the existence of an intolerable situation from which the patient subconsciously is trying to escape by the symptoms that are present. In short, the danger is that one may fall back on the easy diagnosis of psychoneurosis when there is inadequate evidence of this condition. Another group is in my experience even larger and more important than that of the true psychoneurotic or hysterical patients. The patients in this group notice certain sensations or symptoms that occur when they use their eyes. The symptoms are real and may be accompanied by objective signs, such as hyperemia. The patients think the symptoms are signals that must be heeded or dire results will follow; so they stop what they are doing. Their motive is a good and rational one. They value their eyes greatly, and they wish to do the best they can to preserve their eyesight. The mistake is one of interpretation. They think the symptoms are important, whereas they are quite unimportant and should be disregarded. The same thing may happen with disorders of digestion or of other parts of the body. Injudicious handling of such cases causes the patients to be confirmed in their views, and so become worse and harder to cure. These cases include all degrees from a severe anxiety neurosis to a mild apprehension. The latter can be given prompt and welcome relief by an assurance, which must be positive and definite, not doubtful and equivocal, that the symptoms are unimportant and should be disregarded, that neglect of them positively will not lead to permanent damage of any sort. The former require all one's resources and those of consultants, first, to convince them that nothing has been overlooked and, secondly, to eradicate their wrong way of looking at the symptoms.

DR. HANS SCHROEDER, New Orleans: I should like to ask Dr. Rutherford what his attitude is toward the use of colored or tinted lenses in asthenopia. Ever since the American licensees for the manufacture of Crooke's lenses came out with such extravagant claims for them and tried to commercialize the product, I have been opposed to their permanent use. Any case in which clear lenses do not satisfy should have the benefit of a general medical or a neurologic examination, to look for foci of infection, as it were.

DR. C. W. RUTHERFORD, Iowa City: Dr. Lancaster says this is not for the beginner and I think that is correct; but it does apply to the man who is out in practice. While in training a man may as well get this phase of refraction rather than get it without supervision afterward. The term asthenopia is too often used as a synonym for eyestrain. Dr. Lancaster did not fully quote my sentence; I said that the term eyestrain may be reserved for those cases in which visual discomfort is brought on by prolonged close work, and which *promptly disappears when the close work is discontinued.* That is the dividing line between eyestrain and asthenopia. The Doctor speaks of positive evidence being required. What constitutes positive evidence is largely a matter of opinion. Dr. Lancaster used the terms psychoses and psychotic. Please do not think of my paper in connection with the psychoses. A psychoneurosis is something that all have to some extent. Probably every psychoneurotic patient is in some ways normal and the normal individual is in some ways psychoneurotic. The Doctor says that psychoneurosis is not imagination. True. It may exist in what the psychologists call the unconscious mind. That is not the subconscious mind. The patients should be told about their trouble. They are very cooperative if approached in the right way. These matters I take up habitually, and if I can make any suggestions I do it. I base my questions on the patient's complaint and not on the refraction. Dr. Schroeder asked my attitude toward the use of tinted lenses. My attitude is that of resignation in the majority of cases. I seldom think of putting on tinted lenses unless the patient comes in with an old pair of tinted glasses and says he must have that kind. I do not wish to add to his burden and I let him decide with the optician the kind of tint he wants. I specify on the prescription that he may have the tint he desires.

TORSION OF THE APPENDIX TESTIS

REPORT OF TWO CASES

CLYDE H. FOSHEE, M.D.
BOSTON

The first case of torsion of the appendix testis was reported by Colt [1] in 1922. In the same year Walton [2] and Shattock [3] reported one case each. Mouchet [4] was the first, however, to establish this condition as a definite pathologic entity. The fact that twenty-nine cases have come to operation in France alone during the past eight years may be attributed to his interest in the subject. Dix [5] has recently written an admirable paper on the subject and added one case for a total of forty-two cases.

The standard textbooks of surgery do not discuss torsion of the appendix testis nor does a fairly extensive search of North American literature reveal any report of the condition.

REPORT OF CASES

CASE 1.—*History.*—Q. F., a boy, aged 16 months, entered the surgical ward of the hospital, Oct. 22, 1931, because of swelling and tenderness of the left side of the scrotum. Six months prior to entry the patient fell down stairs without apparent injury. Five days later, however, the left side of the scrotum was slightly swollen. The swelling disappeared in one week. Five days before entry the patient became irritable. The following day the left side of the scrotum was noted to be swollen. By the third day it was much enlarged and painful. These symptoms persisted up to the time of entry. There were no urinary or general symptoms.

Physical Examination.—The patient was well developed and nourished and in no acute distress. The temperature was 100 F. by rectum. The left side of the scrotum was about twice the normal size and the overlying skin was red. The left testicle was enlarged, firm and exquisitely tender. Slight thickening and tenderness were present along the spermatic cord to the level of the internal ring. There was no palpable hernia. The right side of the scrotum and the right testicle were entirely normal. The urine was normal and the white blood cell count was 14,800 per cubic millimeter. A diagnosis of torsion of the spermatic cord was made, and an operation was done the same day.

Operation and Result.—Ether anesthesia was used. The approach was made through a left inguinal incision. The spermatic cord was edematous and bluish in appearance, but torsion could not be demonstrated. The testicle was delivered into the wound and found to be about twice the normal size. It appeared edematous and purplish. The bluish color of the cord and testicle persisted regardless of the direction in which they were moved or twisted. The spermatic vessels were thought to be thrombosed; therefore, orchidectomy was done.

Convalescence was uneventful. Redness of the scrotum disappeared on the second day. Swelling and tenderness had entirely subsided by the seventh postoperative day. The wound healed by first intention and the patient was discharged nine days after entry.

Pathologic Examination.—Gross: The specimen consisted of a testicle and 2 cm. of spermatic cord, which were enlarged for a patient of this age. The cord was edematous but did not contain thrombosed vessels. The testis was of normal color on cross-section. The epididymis was edematous but was normal in position and structure. There was no appendix epididymidis or paradidymidis but there was a well defined appendix testis. It was attached to the upper pole of the testis by a pedicle 5 mm. in length and 0.5 mm. in diameter. The appendix testis

From the Surgical Service, Children's Hospital, and the Department of Surgery, Harvard University Medical School.

1. Colt, G. H.: Brit. J. Surg. **9**: 464 (Jan.) 1922.
2. Walton, A. J.: Brit. J. Surg. **10**: 151 (July) 1922.
3. Shattock, C. E.: Lancet **1**: 693 (April 8) 1922.
4. Mouchet, Albert: Presse méd. **31**: 485 (May 30) 1923; **36**: 1345 (Oct. 24) 1928.
5. Dix, V. W.: Brit. J. Urol. **3**: 245 (Sept.) 1931.

was spherical. It was 1 cm. in length and 7 mm. in diameter. It was blue-black and was rather soft in consistency.

Microscopic: The appendix testis was composed of a light myxomatous connective tissue stroma. It was covered by a single layer of columnar cells. The body was coursed by several engorged vessels, some of which had ruptured, filling the stroma with blood. No organisms were seen. The testis and epididymis were normal except for moderate edema. The cord showed considerable edema of its supportive structures. The vessels did not show thrombi.

The diagnosis was hemorrhagic infarction of the appendix testis.

CASE 2.—*History.*—S. B., a boy, aged 8 years, was admitted to the surgical ward of the hospital Oct. 26, 1931, complaining of pain and swelling of the left testicle. He had been entirely well until three days before entry. On arising from a chair, sudden sharp pain in the left testicle caused him to cry out. The pain was very intense for one or two minutes, and less severe for one hour. The pain then gradually subsided. The left scrotum was slightly swollen the following day and caused

Fig. 1 (case 2).—Section of appendix testis, showing areas of necrosis accompanied by marked hemorrhage; hematoxylin and eosin; reduced from a photomicrograph with a magnification of 115 diameters.

mild discomfort on motion. One day before entry the patient had a second attack of sharp pain in the left testicle, which was severe for twenty minutes. The pain had continued less severe up to the time of entry. Following the second attack, the parents stated that the left side of the scrotum enlarged rapidly and the overlying skin became reddened. There had been no fever, nausea or vomiting, or urinary symptoms.

Examination.—The patient was normally developed and nourished and did not appear ill. The temperature was 98.8 F. by rectum. The left thigh was flexed on the abdomen. The skin of the left side of the scrotum was red. The left testicle was about twice normal size, firm and tender. The spermatic cord was not tender along the inguinal canal. There was no palpable hernia. There was no urethral discharge and no enlargement of the salivary glands. Examination of the rectum and urine showed no abnormalities. A diagnosis of torsion of the appendix testis was made.

Operation and Result.—I operated on the patient, the day of entry. A left inguinal incision was used. The spermatic cord showed slight edema but no torsion. The testicle was pulled up into the wound and found to be about twice normal size but of normal color. A black, pea-sized body was seen near the upper pole of the testis beneath the tunica vaginalis. The tunica vaginalis was incised with escape of about 5 cc. of thin, clear yellow fluid. The blue-black lobule (fig. 2), measuring 1 cm. in length, was identified as the appendix testis. It was suspended from the superior pole of the testis by a pedicle measuring 7 mm. in length. The body was twisted three times in clockwise direction on its pedicle. The pedicle was ligated near its base with number 00 plain catgut and the body excised. The tunica vaginalis was everted and sutured. The testicle was returned to the scrotum in its normal position and the wound repaired without drainage as in the operation for radical cure of hernia.

Convalescence was entirely uneventful. The pain ceased immediately following operation. Redness of the scrotum had disappeared by the second postoperative day. Swelling and tenderness gradually subsided. The wound healed by first intention. The patient was discharged nine days after operation; the left testicle was of normal size and was not tender.

Pathologic Examination.—Gross: The specimen presented a blackish spherical body measuring 1 cm. in length and 4 mm. in diameter. The specimen was soft and moist.

Microscopic: The appendix testis (fig. 1) was composed of a connective tissue framework, which was covered with columnar epithelium. The connective tissue varied from a rather dense structure to a light myxomatous appearance. In the center of the specimen was a small circular tube cut in cross-section which was consistent with a canal fragment. The vessels were engorged with blood, and in some areas massive hemorrhage filled the entire stroma. Polymorphonuclear and eosinophilic leukocytes were fairly numerous throughout the structure. No organisms were seen.

The diagnosis was hemorrhagic infarction of the appendix testis.

EMBRYOLOGY AND HISTOLOGY

The appendix testis is the vestigial remnant of the upper end of the müllerian duct and corresponds to the fimbriated end of the uterine tube of the female. It is frequently called the "hydatid of Morgagni," or "sessile hydatid." It is quite constant, being present in about 90 per cent of the testes examined. Grossly it appears as a small flesh-colored or reddish lobule projecting from the anterior surface of the testis near its upper pole or from the grove between the testis and head of the epididymis (fig. 3). The size varies from about that of the head of the common pin to that of a grain of wheat, depending somewhat on the age of the patient. It usually has a sessile attachment but is often pedunculated, and the pedicle may range from 1 mm. to 1.5 cm. in length.

Microscopically this appendage consists of vascular connective tissue enclosing a small canal, or fragments of canals, lined with columnar epithelium, which is sometimes ciliated. The canals have no connection with the genital ducts.

ETIOLOGY

The underlying cause of torsion of the appendix testis is obscure. Direct trauma probably plays no significant part, although onset of symptoms most often follows some sudden activity. Infection is not a predisposing factor and probably plays no part in the process. The fluid from the tunica vaginalis has shown no growth on culture, and microscopic examination of sections have shown no organisms.

Dix [5] suggests that this disorder occurs in the presence of preexisting large remnants, which condition would in itself predispose to torsion.

It would appear, however, that the first prerequisite for torsion of the appendix testis to occur is the existence of a pedicle. Then any activity or stimulus causing a sudden or violent cremasteric reflex response

could cause the body to twist on its pedicle. This idea of causation, it seems, closely fits the clinical history of onset.

This lesion occurs chiefly in children and young adults. Eighty per cent of the patients have been between 5 and 15 years of age. It may occur, however, in older adults and even in infants.

SYMPTOMS AND PHYSICAL SIGNS

This disorder may be acute or chronic in type.

The acute form is sudden in onset. Sharp pain localized to the affected side is the first symptom. The pain is usually constant for a few minutes and then gradually subsides. Swelling and tenderness follow within a few hours and are sharply confined to the affected side of the scrotum. Redness of the overlying skin appears in from thirty-six to forty-eight hours. Nausea or vomiting is practically never present.

Particularly striking is the absence of systemic manifestations. The patients do not appear ill and there is no evidence of other diseases. The temperature is usually between 100 and 101 F., by rectum, but may be normal. Redness, swelling and tenderness are limited to the affected side of the scrotum. The appendix testis is rarely seen by transillumination. Rectal examination shows nothing unusual. There is no urethral discharge and the urine is normal.

The chronic type is insidious in onset. Pain in the affected testicle is the chief complaint. Occasionally the patient feels a tumor. The scrotum does not enlarge and the skin does not become red. Patients of this group are always ambulatory. The testicle is tender, and often a bilobed mass can be felt near the upper pole of the testis.

DIAGNOSIS

The acute type must be differentiated from torsion of the spermatic cord, strangulated inguinal hernia, and acute orchitis or epididymitis. A differential diagnosis between torsion of the appendix testis and torsion of the spermatic cord or strangulated hernia may be difficult to make. Torsion of the cord or strangulated hernia are unlikely, however, in the absence of systemic manifestations, such as nausea, vomiting, shock and other general phenomena. An acute orchitis or epididymitis of infectious origin should give no great concern in the absence of parotitis, urethral discharge or history of instrumentation. Normal rectal and urine examinations are also unlikely in acute epididymitis. It may be very difficult, however, to make a differential diagnosis between torsion of the appendix testis and "epididymo-orchitis of unknown cause." Mouchet [4] and Dix [5] have suggested that the latter is a misnomer and that the true underlying pathologic condition is probably torsion of the appendix testis.

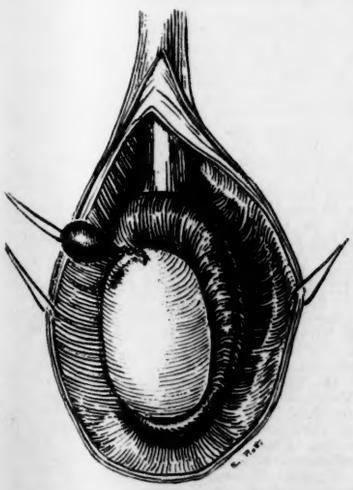

Fig. 2 (case 2).—Torsion of appendix testis, showing enlargement of appendix testis and edema of testis and epididymis.

The chronic type must be differentiated from triorchidism and a free body in a hydrocele sac.

A bilobed mass is usually felt in one side of the scrotum in triorchidism, as in chronic torsion of the appendix testis, but the accessory testicle is practically never tender and gives no symptoms. A free body in a hydrocele sac likewise usually never gives symptoms. The free body, or stone, is situated in the dependent portion of the sac, freely movable and not tender, which is the reverse of the signs of chronic tension of the appendix testis.

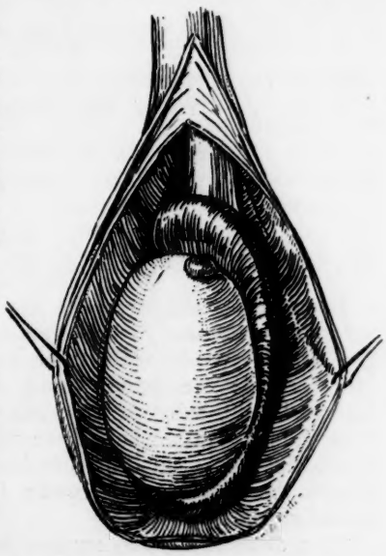

Fig. 3.—Normal testicle, showing the appendix testis projecting from the groove between the testis and the epididymis. The remaining testicular appendages are not shown.

PATHOLOGY

The spermatic cord is usually edematous and may be bluish in appearance. The testicle is edematous and often enlarged to twice or three times its normal size but is normal in color. Occasionally the appendix testis can be seen beneath the tunica vaginalis. The tunica vaginalis almost always contains an excess of fluid, which may amount to 5 or 10 cc. The fluid may be turbid, yellow or blood tinged. The appendix testis may be black, blue-black or red. It is usually about the size of a pea.

The microscopic picture is essentially that of sudden massive infarction, which in some areas has gone on to necrosis. The normal architecture is greatly distorted by the marked hemorrhage, and normal histologic structures cannot be identified with ease. A more complete description of the detailed pathologic changes is included with the case reports.

TREATMENT

Operation is the treatment of choice and should be performed as soon as the diagnosis is made. The incision should be made over the inguinal canal, as this route offers less chance of infection than the scrotal route. The appendage should be excised after ligation of the pedicle at its base. When the pedicle is extremely short, the tumor should be removed without ligature. The possibility of hemorrhage is remote. The tunica vaginalis should be everted and sutured. The wound should be closed without drainage, as in the operation for radical cure of hernia.

PROGNOSIS

There should be no mortality with this operation. The pain ceases immediately following operation, and edema of the scrotum gradually subsides. The testicle is usually of normal size and not tender by the ninth or tenth postoperative day.

CONCLUSIONS

Torsion of the appendix testis is caused by the force exerted by a sudden cremasteric reflex on a pedunculated appendix testis.

"Epididymo-orchitis of unknown cause" is apparently a misnomer. Many of these cases are probably torsion of the appendix testis.

Operation is the best treatment for this condition. The inguinal route is the method of choice.

ANTHELMINTICS

SOME THERAPEUTIC AND PRACTICAL CONSIDERATIONS ON THEIR USE

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AND
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In a recent review of the literature we have found references to nearly three hundred substances which have been used against hookworm and Ascaris.[1] Besides this we have tested some three or four hundred other substances on Ascaris in our laboratory. The time which we have here will not allow any true comparison of even the more important of these, and hardly the statement of reasons for our conclusions as to their relative merits.

One drug after another has been tried against the most common intestinal helminths, hookworm and Ascaris, and each has gone through about the same history: first, great enthusiasm about its efficacy and nontoxicity, and then a gradual realization that the results obtained in the treatment of thousands of patients have not come up to first expectations. Cases of intoxication appear, and one more drug is placed in the list of anthelmintics which must be used with caution. Having lately introduced a new anthelmintic ourselves, we are in the early period of enthusiasm in which we hope to find that it will prove to be of value, but already unexpected complications have arisen and it remains to be seen whether this substance will survive as well as its predecessors.

When we attempt to give roughly the present status of anthelmintic treatment, we find that we have for hookworm, thymol, betanaphthol, oil of chenopodium, ascaridole, carbon tetrachloride, tetrachlorethylene and our recently introduced hexylresorcinol. All manner of figures can be found for the percentage of worms removed by these different substances,[2] but we shall make no attempt to hazard an opinion as to which of these drugs is the most effective. All of them will undoubtedly remove a very high percentage of hookworms in a single therapeutic dose if proper precautions are taken for preliminary and after treatment. In mass treatments of thousands or millions, many other complicating factors come in, which cannot be discussed here.

In spite of the fact that Ashford[3] has reported treatment with thymol in one and one-half million cases without a fatality and that enormous numbers of persons have been treated with each of these substances, except hexylresorcinol, all these drugs, with the exception of tetrachlorethylene and hexylresorcinol, are well known poisons producing a definite picture of intoxication in animals, which is similar to that seen in man.[4] The International Health Division of the Rockefeller Foundation has allowed us to go over records of reports on millions of patients treated with all manner of substances in different parts of the world. From these reports, cases cited in the literature and conversations with field workers who have treated thousands of patients, we have obtained a very clearcut idea of the toxic nature of these various substances. Although the death rate may be only 1:40,000 from any of these drugs, the deaths are pathognomonic of each substance, and are not due to extraneous factors. The number of cases of severe intoxication is much greater than commonly supposed. Ashford,[3] in spite of his million and one-half cases without a death from thymol, stated that this drug was becoming very unpopular on account of the number of cases of intoxication, and the description of the proper treatment with thymol in Dock and Bass'[5] book on hookworm disease is anything but reassuring. The worst danger comes from the fact that most cases of poisoning occur apparently from an idiosyncrasy on the part of the patient rather than from an overdose of the drug.

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1. Lamson, P. D., and Ward, C. B.: The Chemotherapy of Helminth Infestations, J. Parasitol. **18**: 173 (March) 1932.

2. (*a*) Caius, J. F., and Mhaskar, K. S.: The Correlation Between the Chemical Composition of Anthelmintics and Their Therapeutic Values in Connection with the Hookworm Inquiry in the Madras Presidency, Indian J. M. Research **7**: 429 and 570, 1919; **11**: 347, 1923. (*b*) Nicol, Burton: Some Notes on Beta-Naphthol and Thymol as Anthelmintics, J. Trop. Med. **14**: 50, 1911. (*c*) Leach, C. N., and Hampton, G. G.: Betanaphthol in the Treatment of Hookworm Disease, J. A. M. A. **80**: 8 (Jan. 6) 1923. (*d*) Soper, F. L.: Tetrachlorethylene (C_2Cl_4) in the Treatment of Hookworm Disease, Am. J. Trop. Med. **6**: 451, 1926. (*e*) Schapiro, L., and Stoll, N. R.: Preliminary Note on the Anthelmintic Value of Tetrachlorethylene Based on Egg Counts Before and After One Treatment, Am. J. Trop. Med. **7**: 193, 1927. (*f*) Kendrick, J. F.: The Treatment of Hookworm Disease with Tetrachlorethylene, Am. J. Trop. Med. **9**: 483, 1929.

3. Ashford, B. K.: Remarks on a Clinical Study of Uncinariasis and Its Treatment, Internat. Clin. **3**: 28, 1913.

4. Schüffner, W.: Der Wert einiger Vermifuga gegenüber dem Ankylostomum, mit Bemerkungen über die Wurmkrankheit in Niederländisch-Indien, Arch. f. Schiffs-u. Tropen-Hyg. **16**: 569, 1912. Yoshida: On the Haemolysis by Thymol, Trop. Dis. Bull. **2**: 634, 1913. Stiles, C. W., and Leonard, G. F.: Hookworm Disease, U. S. Pub. Health Rep. **28**: 119, 1913. Stiles, C. W., and Boatwright, H. F.: Thymol Administration, ibid. **28**: 1497, 1913. Eytinge, E. O. J.: Case Reports from Guam, U. S. Nav. M. Bull. **8**: 116, 1914. Ozzard: The Treatment of Ankylostomiasis, J. Trop. Med. **18**: 93, 1915. Moillet, A. K., and Carreno, F.: Intestinal Parasites of the Isthmus of Tehuantepec (Mexico), Am. J. Trop. Dis. **3**: 411, 1916. Washburn, B. E.: Use of Thymol in Treatment of Hookworm Disease, J. A. M. A. **68**: 1162 (April 21) 1917. Noguchi, R.: Thymol Poisoning, Haemoglobinuria Following Hookworm Treatment, Trop. Dis. Bull. **12**: 186, 1918. Howard, H. H.: The Control of Hookworm Disease by the Intensive Method, ibid. **14**: 159, 1919. Barnes, M. E.: Death Following the Administration of Thymol, J. A. M. A. **79**: 964 (Sept. 16) 1922. Castex, M. R., and Lorenzo, R.: Sobre dos casos de parasitismo por el Strongilodes es estercoralis, Trop. Dis. Bull. **23**: 760, 1926. Manson-Bahr, P. H.: Tropical Diseases, London, Cassell & Co., 1929. Cockin, R. P.: A Further Report on Work Done in Connection with Ankylostomiasis at the Colony Hospital, St. George's, Grenada, Trop. Dis. Bull. **1**: 99, 1912. Ashford, B. K., and King, W.: Uncinariasis, Its Development, Course and Treatment, J. A. M. A. **49**: 471 (Aug. 10) 1907. Corteling, O. R.: Beta-Naphthol in Ankylostomiasis, Trop. Dis. Bull. **8**: 197, 1916. Kerr, W. F. J.: Intestinal Parasites in Northern Siam, Tr. Soc. Trop. Med. & Hyg. **9**: 82, 1916. Orme, W. B.: Beta-Naphthol Poisoning Occurring During the Treatment of Ankylostomiasis, Brit. M. J. **2**: 176, 1915. Schultz, W. H.: Remedies for Animal Parasites, J. A. M. A. **57**: 1102 (Sept. 30) 1911. Brüning, H.: Zur Kenntniss des amerikanischen Wurmsamenöles, Ztschr. f. exper. Path. u. Therap. **3**: 564, 1906. Levy, R. L.: Oil of Chenopodium in the Treatment of Hookworm Infections, J. A. M. A. **63**: 1946 (Nov. 28) 1914. Coutant, A. F.: Chenopodium Poisoning, J. A. M. A. **67**: 1599 (Nov. 25) 1916. Roth, D. A.: Some Dangers of the Chenopodium Treatment, South. M. J. **11**: 733, 1918. Brüning, H.: Zur Frage der Vergiftung mit Ol. Chenopodii anthelminthici bei Wurmkuren im Kindesalter, Med. Klin., 1919, no. 47, p. 1203. Brosius, O. T., and Bishop, W. A.: Diseases Due to Intestinal Parasites in Colombia, and Their Treatment, J. A. M. A. **74**: 1768 (June 26) 1920. Norwood, B. F.: A Case of Poisoning by Oil of Chenopodium, U. S. Nav. M. Bull. **15**: 818, 1921. Evers, H.: Schwere Hörstörungen nach Chenopodiumgaben, Deutsche med. Wchnschr. **47**: 857, 1921. Brüning, H.: Wurmkuren bei Kindern, ihre Gefahren und deren Verhütung, Deutsche med. Wchnschr. **49**: 1492, 1923. Braun, C.: Tödliche Vergiftung durch Chenopodiumöl, München. med. Wchnschr. **72**: 810, 1925. Lamson, P. D.; Minot, A. S., and Robbins, B. H.: The Prevention and Treatment of Carbon Tetrachloride Intoxication, J. A. M. A. **90**: 345 (Feb. 4) 1928. Lamson, P. D.; Robbins, B. H., and Ward, C. B.: The Pharmacology and Toxicology of Tetrachlorethylene, Am. J. Hyg. **9**: 430, 1929. Dock, George, and Bass, Charles C.: Hookworm Disease, St. Louis, 1910. Nicol (footnote 2 *b*). We have collected some five or six hundred references regarding these different anthelmintics. It is extremely difficult to do justice to the various authors in quoting references for these illustrative cases, as important articles have to be omitted.

5. Dock, George; and Bass, Charles C.: Hookworm Disease, St. Louis, C. V. Mosby Company, 1910.

Bozzolo [6] and his assistants gave as much as 12 and 15 Gm. of thymol; Smillie [7] gave 18 Gm. of betanaphthol; thousands have been treated with 10 and 15 cc. doses of carbon tetrachloride without any greater ill effects than with the customary doses, which are from one quarter to one sixth of these amounts.[8]

For Ascaris only two substances, santonin and oil of chenopodium, were in general use until the introduction of hexylresorcinol. Santonin is relatively ineffective; [9] it causes disturbances of vision in a high percentage of patients,[10] besides very severe cases of intoxication.[11] Oil of chenopodium, as we have pointed out, is a toxic and dangerous substance and is only fairly effective. It is the one substance in this group of which an overdose is almost certain to be fatal.

If one still retains one's faith in the older remedies, thymol, santonin, betanaphthol, oil of chenopodium, its active principle, ascaridole, or carbon tetrachloride, one is bound to run a certain risk of death, a fair chance of collapse, an acute nephritis from betanaphthol, disturbance of vision with santonin, deafness from oil of chenopodium and necrosis of the liver from carbon tetrachloride. It is not remarkable after all that "worming" is generally considered a dangerous procedure. What, then, have we for the treatment of these intestinal helminths?

In this list of three hundred substances referred to in the literature there are in all probability certain ones which would be found much more effective than we imagine, if sufficiently studied, but such is not the case at present and there are to our knowledge only three or four other drugs which are of particular interest to us at present. These are tetrachlorethylene, introduced by Dr. Maurice C. Hall [12] in 1925, ficin, a proteolytic enzyme isolated by Robbins [13] in our laboratory from leche d'higuerón, the sap of the fig tree, hexylresorcinol introduced by us a year or so ago and certain substituted phenols with which we are at present working.

TETRACHLORETHYLENE

To appreciate the value of this substance, one should be familiar with the action of carbon tetrachloride. This was introduced by Hall [14] in 1921, and is thought by many to be the most efficient anthelmintic against hookworm of which we know. We have found in our laboratory that this substance produces a central necrosis of the liver [15] and an accumulation of guanidine in the blood [16] due to a disturbance in liver function. Guanidine is a toxic substance, but its effects are neutralized by calcium which is normally present in sufficient amounts in the body. If for any reason the patient is in a condition of calcium lack at the time of taking carbon tetrachloride, the same amount of guanidine will be formed, but on account of the lack of calcium, a severe intoxication may take place with a lowering of the blood sugar to the convulsive level, hemorrhages, vomiting and death. No deaths have been reported from tetrachlorethylene and we consequently do not know what pathologic changes occur in man, but we have been unable to produce intoxication, microscopic changes in the liver or other organs or chemical changes in the blood in our experimental work in animals [17] and consequently feel that tetrachlorethylene should not be classed with carbon tetrachloride as a toxic anthelmintic.

Tetrachlorethylene is a substance slightly less volatile than chloroform, and naturally if it is absorbed from the intestine, as appears to be the case in man, it will cause a certain amount of dizziness, staggering, etc., similar to that seen from the absorption of alcohol, chloroform or any other anesthetic. This should, however, not be confused with a true intoxication. Tetrachlorethylene appears, therefore, to be an extremely valuable substance for the treatment of uncomplicated hookworm disease.[18] It is thought to be about as effective against hookworm as carbon tetrachloride, but is ineffective against Ascaris, and it remains to be seen whether it will cause the same dangerous migration of these parasites as that which occurs after the use of carbon tetrachloride.

FICIN

The natives of South America have for ages used the sap of the fig tree for the treatment of intestinal parasites. Molloy investigated the action of this substance many years ago,[19] and recently the Caldwells [20] carried out a quantitative study of its action, and found that it was an active anthelmintic. It is of special interest as, besides removing Ascaris, it will remove about 80 per cent of Trichuris as compared with the 20 or 25 per cent removed by most substances [21] and the 40 or 50 per cent removed by hexylresorcinol.[22] Robbins, working in our department, demonstrated that the active principle of this sap is a proteolytic enzyme which digests the parasites.[13] It is nonirritating, and nontoxic, if no lesion of the intestinal tract is present,

6. Bozzolo, C.: Notes on the Treatment of Ankylostoma Anemia (Uncinariasis, Hookworm Disease) with Thymol, J. A. M. A. **58**: 1744 (June 8) 1912.

7. Smillie, W. G.: Betanaphthol Poisoning in the Treatment of Hookworm Disease, J. A. M. A. **74**: 1503 (May 29) 1920.

8. Sawyer, W. A.; Sweet, W. C., and Shaw, A. E.: Institutional Hookworm Disease in a Non-Endemic Region, J. Hyg. **22**: 77, 1923.

9. Shillinger, J. E.: Anthelmintic Properties of Santonin, J. Agric. Research **34**: 839, 1927.

10. Rose, E.: Ueber die Wirkung der wesentlichen Bestandtheile der Wurmblüthen (des Santonikum), Virchows Arch. f. path. Anat. **16**: 233, 1859; **18**: 15, 1860; Ueber die Farbenblindheit durch Genuss der Santonsäure, ibid. **19**: 522, 1860; **20**: 245, 1861; Ueber die Hallucinationen im Santonrausch, ibid. **28**: 30, 1863. Marshall, W.: A Study of Santonin Xanthopsia, J. Pharmacol. & Exper. Therap. **30**: 361 (March) 1927; Santonin Excretion and Its Relation to Santonin Xanthopsia, ibid. **30**: 389, 1927; Color Vision After Intravenous Injection of Santonin, ibid. **32**: 189, 1927.

11. Binz, C.: Ueber Santoninvergiftung und deren Therapie, Arch. f. exper. Path. u. Pharmakol. **6**: 300, 1877. Schmiedeberg, O.: Grundriss der Pharmakologie in Bezug auf Arzneimittellehre und Toxikologie, Leipzig, F. C. W. Vogel, 1921.

12. Hall, M. C., and Shillinger, J. E.: Tetrachlorethylene, a New Anthelmintic, Am. J. Trop. Med. **5**: 229 (May) 1925.

13. Robbins, B. H.: A Proteolytic Enzyme in Ficin, the Anthelmintic Principle of Leche de Higueron, J. Biol. Chem. **87**: 251 (June) 1930.

14. Hall, M. C.: Carbon Tetrachloride for the Removal of Parasitic Worms, Especially Hookworms, J. Agric. Research **21**: 157, 1921.

15. Pessôa, S. B., and Meyer, J. R.: Bol. Soc. de med. e cir., São Paulo, 1922; abstr., Am. J. Hyg. **3**: 39, 1923. Gardner, G. H.; Grove, R. C.; Gustafson, R. K.; Maire, E. D.; Thompson, M. J.; Wells, H. S., and Lamson, P. D.: Studies on the Pathological Histology of Experimental Carbon Tetrachloride Poisoning, Bull. Johns Hopkins Hosp. **36**: 107, 1925.

16. Minot, A. S.: The Relation of Calcium to the Toxicity of Carbon Tetrachloride in Dogs, Proc. Soc. Exper. Biol. & Med. **24**: 617, 1927. Minot, A. S., and Cutler, J. T.: Guanidine Retention and Calcium Reserve as Antagonistic Factors in Carbon Tetrachloride and Chloroform Poisoning, J. Clin. Investigation **6**: 369 (Dec.) 1928; Studies of the Response to Calcium Medication in the Hypoglycemia of Carbon Tetrachloride Poisoning, Am. J. Physiol. **93**: 674 (June) 1930. Cutler, J. T.: The Accumulation of Guanidine in the Blood Following Acute Liver Injury by Carbon Tetrachloride, Chloroform, Arsenic or Phosphorus, J. Pharmacol. & Exper. Therap. **41**: 337 (March) 1931. Minot, A. S.: The Mechanism of the Hypoglycemia Produced by Guanidine and Carbon Tetrachloride Poisoning and Its Relief by Calcium Medication, J. Pharmacol. & Exper. Therap. **43**: 295 (Oct.) 1931.

17. Lamson, Robbins and Ward: Am. J. Hyg. **9**: 430, 1929.

18. Lambert, S. M.: Tests with Tetrachlorethylene, M. J. Australia **2**: 699 (Dec. 19) 1925. Maplestone, P. A., and Mukerji, A. M.: Tetrachlorethylene in the Treatment of Hookworm Disease, Indian M. Gaz. **64**: 424 (Aug.) 1929. Hall and Shillinger (footnote 12). Soper (footnote *2 d*). Schapiro and Stoll (footnote *2 e*). Kendrick (footnote *2 f*). Lamson, Robbins and Ward (footnote 17).

19. Tejada, Raphael: Joventud méd.

20. Caldwell, F. C., and Caldwell, F. L.: A Study of the Anthelmintic Efficiency of Higuerolatex in the Treatment of Trichuriasis, with Comment as to Its Effectiveness Against Ascaris Infestation, Am. J. Trop. Med. **9**: 471, 1929.

21. Yeager, C. H., and Kirk, J. B.: The Employment of Carbon Tetrachloride Followed Immediately by Magnesium Sulphate in the Treatment of Uncinariasis, Tr. Roy. Soc. Trop. Med. & Hyg. **19**: 249, 1925. Hall, M. C., and Augustine, D. L.: Some Investigations of Anthelmintics by an Egg and Worm Count Method, Am. J. Hyg. **9**: 585, 1929.

22. Lamson, P. D.; Brown, H. W.; Robbins, B. H., and Ward, C. B.: Field Treatments of Ascariasis, Ancylostomiasis, and Trichuriasis with Hexylresorcinol, Am. J. Hyg. **13**: 803, 1931.

but if this is the case it may cause dangerous erosion of the mucous membrane. Further work remains to be done before this substance can be recommended for general use, but it may turn out to be of great therapeutic interest.

HEXYLRESORCINOL

If one looks over the anthelmintics in the groups of monohydric, dihydric and polyhydric phenols, it is surprising to find how many well known anthelmintics fall in these groups: thymol, carvacrol, chavicol, eugenol, estragol, chavibetol, betanaphthol, rottlerin, kosotoxin and filicic acid, besides some twenty-five others.[1] We have been much interested in studying this group, and have thus far carried out experiments with three series of substances. Johnson and Lane[23] first showed that by introducing normal alkyl chains of increasing molecular weights into the resorcinol molecule, the antiseptic power of these substances could be increased. It was later shown by Leonard[24] that the maximum bactericidal effect was reached with a chain of six carbon atoms. A similar increase in bactericidal action has been demonstrated for phenols, guaiacols and cresols by Coulthard, Marshall and Pyman.[25] We have synthesized in our laboratory several members of the series, methyl to normal octyl phenols, and the entire series of these cresols as well as numbers of their isomers and homologues. Dr. Veader Leonard has kindly given us practically the entire series of alkyl resorcinols from methyl to dodecyl. The anthelmintic action of these substances is increased up to the amyl, hexyl, or heptyl compounds in these different series. Beyond this their activity falls off, which may be due to the great decrease in water solubility. Water solubility is, however, not the only factor, as a slight change in position of the alkyl groups, which does not materially alter the solubility, greatly affects the anthelmintic action. Among these substances we have found two which show decided possibilities. The first of these, hexylresorcinol, has been used by us in over twenty-five hundred cases in which we have determined the results in each case by the Stoll egg-counting method.[26] We have found this would remove in single doses an average of from 90 to 95 per cent of Ascaris, from 80 to 85 per cent of hookworm, and from 40 to 50 per cent of Trichuris. We have now treated a small series of patients for pinworm with great success. Several tapeworms have been removed by its use, but enough cases have not been collected to enable us to make a statement regarding its value against this parasite. Our results in hookworm disease and ascariasis have been confirmed in Ceylon, Samoa, Mexico and Guatemala.

Hexylresorcinol is the first anthelmintic that we know of which, for any reason, has been given with the object of absorption from the intestinal tract. Absorption has been feared from all anthelmintics and probably many patients have been killed by overpurging in an effort to avoid absorption of the drug. Hexylresorcinol has for years been administered as a urinary antiseptic in olive oil under the trade name of Caprokol N. N. R. as often as three or four times a day, in doses larger than advised by us in anthelmintic work, over periods of weeks and months with no reported case of intoxication,[27] in spite of its having been given to people in extremely poor health, with all types and degrees of genito-urinary disturbances. We have shown quantitatively that approximately 30 per cent of the hexylresorcinol taken by mouth is absorbed and excreted quickly in the urine as the ethereal sulphate, the remainder is excreted unchanged in the stool.[28] Little, if any, is retained or utilized by the body. With extremely delicate tests, we have been unable to find any trace of this substance in the blood, liver or other organs of the body after its oral administration. It must, therefore, be rapidly excreted and is never present in high concentrations in the body. We have been unable to find reports of any intoxications following its use even after tremendous doses. Hexylresorcinol can be considered as a substituted phenol and probably does not cause the same type of intoxication as resorcinol and phenol on account of its very low solubility.

This substance would be an almost perfect anthelmintic if it were not for two unfortunate properties. The first of these is that it combines with protein readily and is relatively ineffective if taken when food is present in the stomach or intestines. In mass treatments, in which a large number of persons are certain not to follow directions, many will come for treatment with food in the intestines and the results will be found disappointingly low. The other unfortunate property is the local irritating action of hexylresorcinol. It causes a certain amount of irritation in the stomach which, however, can be considered negligible. Most patients have no symptoms whatever after taking hexylresorcinol, while a few may show a slight gastric irritation, and in rare cases, chiefly when they have eaten against advice, the patients may vomit. We have treated whole schools with this substance early in the morning. The children have gone on with their daily work without any difficulties whatever, and all have willingly returned for a second treatment if such tests were carried out, which indicates that they minded the first treatment little, if any. Hexylresorcinol crystals cannot be taken by mouth unless protected in some way, as they cause a local "burn" of the mucous membrane. This substance is too insoluble to be given in water solutions; it is inactive in oil and it decomposes gelatin capsules. After many experiments, Sharp & Dohme, who supplied us with hexylresorcinol, devised a sugar-coated pill of hexylresorcinol which we have given to six or seven hundred patients with great success. These pills have also been used by others in field treatments with equally good results.[29] When these pills were put out by Sharp & Dohme for general use with instructions that they should not be chewed, it was soon found that physicians would order the pills and the apothecary would give them to the patients or to the parents in a box with no precautionary directions. Parents would

23. Johnson, T. B., and Lane, F. W.: The Preparation of Some Alkyl Derivatives of Resorcinol and the Relation of Their Structure to Antiseptic Properties, J. Am. Chem. Soc. **43**: 348, 1921.

24. Leonard, V.: Secretion of Bactericidal Urine and Disinfection of the Urinary Tract, J. A. M. A. **83**: 2005 (Dec. 20) 1924.

25. Coulthard, C. E.; Marshall, J., and Pyman, F. L.: The Variation of Phenol Coefficients in Homologous Series of Phenols, J. Chem. Soc., 1930, p. 280.

26. (*a*) Lamson, P. D.; Ward, C. B., and Brown, H. W.: An Effective Ascaricide-Hexylresorcinol, Proc. Soc. Exper. Biol. & Med. **27**:1017, 1930. (*b*) Lamson, P. D.; Brown, H. W.; Ward, C. B., and Robbins, B. H.: Hexylresorcinol in the Treatment of Hookworm Disease, Proc. Soc. Exper. Biol. & Med. **28**: 191, 1930. (*c*) Lamson, P. D.; Caldwell, E. L.; Brown, H. W., and Ward, C. B.: Hexylresorcinol in the Treatment of Human Ascariasis, Am. J. Hyg. **13**: 568, 1931; (*d*) A Comparison of the Anthelmintic Properties of Hexylresorcinol and Heptylresorcinol, ibid. **15**: 306 (Jan.) 1932. (*e*) Lamson, P. D., and Ward, C. B.: Anthelmintic Properties of Certain Alkyl Cresols, Proc. Soc. Exper. Biol. & Med. **29**: 340, 1931. (*f*) Lamson, Brown, Robbins and Ward (footnote 22).

27. Leonard, V.: Hexylresorcinol, J. Urol. **12**: 585, 1924; footnote 24.

28. Robbins, B. H.: Quantitative Studies on the Absorption and Excretion of Hexylresorcinol and Heptylresorcinol under Different Conditions, J. Pharmacol. & Exper. Therap. **43**: 325 (Oct.) 1931. Robbins, B. H., and Wesson, L. G.: A Method for the Quantitative Determination of Hexylresorcinol in Tissues, Blood and Excreta, ibid. **43**: 335 (Oct.) 1931.

29. Brown, H. W.: The Treatment of Ascariasis and Trichuriasis with Hexylresorcinol Pills, Am. J. Hyg., to be published.

then administer these pills to children, many of whom could not swallow them, and consequently chewed them up; the result was that they burned their mouths, which gave a very shocking appearance, the mucous membrane turning white and small shreds of epithelium peeling off. All these burns were, however, entirely superficial and were recovered from without any injury after a day or so. As hexylresorcinol has a local anesthetic action, the burns caused no particular inconvenience to the patients except for the local anesthetic effect. Sharp & Dohme, who control this substance, have been so bothered by complaints of children chewing up the pills that we understand that hexylresorcinol has been withdrawn from the general market although it is still supplied to health boards. It would seem a pity if this really useful substance could not be used by the medical profession merely on account of failure on the part of the physicians to administer it properly. Any physician can give these pills to an adult and see that they are swallowed without being chewed, and he can personally administer them to children if they cannot swallow pills. Because of its action on both Ascaris and hookworm, hexylresorcinol can be used in mixed infestation, but on account of the local irritating property, it is not an ideal general vermifuge and probably would continue to cause these local burns if widely distributed without medical supervision among people who refuse to follow directions. It is possibly the most effective substance known against Ascaris, well over 90 per cent having been shown by actual egg count to have been removed in our series of over two thousand cases. We believe that if given properly, it may continue to give results which compare favorably with other substances against hookworm. Every worm has been removed in some schools in which the children were given single treatments. In our last group of 263 cases of ascariasis, 197 or 75 per cent became negative after the first treatment, with a total reduction of 90 per cent in the egg count, while 42 patients treated twice showed 93 per cent negative and a 93 per cent reduction in egg count. *We wish to state emphatically that we are not attempting to compare hexylresorcinol, which has been used in only a few thousand cases, with these other substances which have been given to millions of patients. We are merely stating what has been found by us in our own experiments.*

6-n-HEXYL-META-CRESOL

The local irritating action of hexylresorcinol is characteristic of phenols and resorcinols and led us to a study of other substituted phenols in the hope of finding one with less irritating action, less reaction with protein but a similar activity on the parasite; 6-n-hexyl-meta-cresol appears to have such properties.[26e] It is a liquid, which would make it easier for children to take than the hexylresorcinol pills; it reacts less with protein than hexylresorcinol; it is decidedly less irritating in the mouth and stomach than hexylresorcinol; in fact, a mouthful of this substance can be taken without producing any visible change in the mucous membrane. It causes practically no irritation of the stomach, and no greater irritation when taken with alcohol than when given alone. This is a property of decided importance. Our toxicity experiments in animals indicate that 6-n-hexyl-meta-cresol will be no more toxic than hexylresorcinol, but we are not quite ready to advocate its use in human beings. We hope, however, that this may be a useful clinical substance and that further investigation of this group of phenols will bring forth an anthelmintic which is so safe, effective and cheap that it can be generally distributed throughout the world in every community infested with these unwelcome visitors, so that finally, after sufficient education on the part of the medical profession, people can rid themselves of these parasites by self-medication without danger of intoxication.

ABSTRACT OF DISCUSSION

DR. W. G. SMILLIE, Boston: 'Those who have had experience in the actual treatment of intestinal parasites realize how important this investigative work has been. Some no doubt have stood at the bedside of a child with the coma and intention tremor so characteristic of oil of chenopodium poisoning. The condition began with dizziness and a headache, followed by nausea, and then the child became comatose, and finally the jerking of the arms and legs began and kept up for hours. Finally, the child died. Oil of chenopodium had been given with the best intentions in the world. A toxic dose had not been given, but the child died. Those who are treating hundreds of thousands of children know with certainty that, if oil of chenopodium is used, sooner or later there will be a fatality with a normal dose. Carbon tetrachloride was welcomed, for it seemed to be effective and relatively nontoxic. But it soon proved disappointing because again it was found that in some instances, for some unknown reason, the individual died from very small doses of the drug. The authors showed why patients died from carbon tetrachloride poisoning, but they went still further. The various drugs that have been developed on a more or less empirical basis and used in the treatment of intestinal parasites have been effective, it is true, but in certain instances they have been toxic. The margin between the effective therapeutic dose and the toxic dose was often so close that even though one watched every detail of treatment as carefully as one could, sooner or later one had a fatality. The authors have gone about their anthelmintic studies in an original way. They have studied various combinations of drugs, synthesizing here, subtracting a radical there, attempting to develop the perfect vermifuge that will remove all intestinal parasites in a single dose, without inconvenience to the patient. They have been phenomenally successful. Perhaps they may have a better vermifuge next year. Certainly they have already developed a vermifuge that is effective and relatively nontoxic.

DR. PAUL D. LAMSON, Nashville, Tenn.: Some of the drugs in common use are really dangerous substances. I have talked with many people who have treated four or five thousand patients without a death from oil of chenopodium and who simply will not believe that these are dangerous substances. When, however, one reads of a woman coming to a clinic, being given thymol, and then starting to walk 100 yards to her house and when about 50 yards away collapsing and falling, although she was perfectly well when she left the clinic, one realizes what very dangerous substances these drugs are. The trouble with them is that one simply cannot tell when intoxication is going to appear. Most of these intoxications are due to idiosyncrasies and not to overdose. Overdosage of most anthelmintics with the exception of chenopodium has not been followed by death ordinarily. Dr. Smillie was complimentary about the results obtained with hexylresorcinol. It ought, however, to be remembered that although we have carefully checked with egg counts 2,500 cases the number of patients treated by us is small compared with the thousands and millions that have been treated with other anthelmintics. It is not yet time, therefore, to say that an actual advance has been made, but it is interesting from both a pharmacologic as well as a practical point of view to realize how many related chemical substances can be made, among which the ideal anthelmintic may yet be found in the laboratory. Certainly there is hope in the future of pharmacology.

Tuberculous Hemoptysis.—Pulmonary hemorrhage, when investigated on the postmortem table, is found to proceed from the wall of an old cavity in the affected lung, usually a thick, firm, fibrous wall, showing little evidence of active disease, but well organized granulation tissue with marked evidence of contracting scar and tension effects resulting from it.—Bogen, Emil: *American Journal of Clinical Pathology*, July, 1932.

THE ISOLATION OF BRUCELLA ABORTUS FROM TONSILS

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Undulant fever is now a well established disease of man, but much information is wanting concerning its diagnosis, modes of infection, pathology and treatment. There are those who like to believe that Brucella abortus gains entrance to the body only through wounds, while others prefer to accept the digestive tract as the common channel through which the invasion occurs. Undoubtedly, both routes are vulnerable. Soon after Brucella abortus was discovered in raw cow's milk, Mohler and Traum [1] became interested in determining whether the organism was pathogenic for man. They infected guinea-pigs with extracts from fifty-six tonsils and adenoid tissue removed from children who had drunk raw milk. They reported finding typical lesions of the disease in one guinea-pig, from whose liver, spleen and testes Brucella abortus was isolated.

In studying the effect of feeding milk artificially and naturally infected with this organism to calves, the senior author [2] observed that the lymph nodes draining the mouth and pharynx became infected first and remained infected the longest of any of the tissues examined. This observation on calves suggested a further study of diseased tonsils from man.

In 1926, examinations on fifty-five pairs of tonsils were made at Ithaca, N. Y.[3] A study of the tonsils from a patient with undulant fever, from the Medical Service at the Strong Memorial Hospital, Rochester, N. Y., has recently been made.

TECHNIC

The tonsils were removed by surgeons after such clinical diagnoses as abscess, hypertrophy, chronic tonsillitis, rheumatism, endocarditis and arthritis had been made. Each pair of tonsils was placed in a closed sterile jar immediately after operation and brought to the laboratory, where each tonsil was transferred with a sterile pair of forceps to a sterile petri dish and described. Cultures were made after the surface of the tonsil had been seared with a hot spatula. Bits of the tissue or any purulent exudate were transferred to an infusion agar to which sterile horse serum had been added. The tubes were then placed in a jar in which 15 per cent of the air had been replaced with 10 per cent carbon dioxide and incubated at 37 C. for four or five days. After forty-eight hours' incubation, abortus-like colonies were fished from the growths on the agar slants and replated. Final identification was made by the agglutination and the agglutinin absorption tests.

The remainder of the tonsil was ground in a sterile mortar with 5 cc. of sterile physiologic solution of sodium chloride, which made a very heavy extract. A guinea-pig was injected subcutaneously with 1 cc. of the extract. The guinea-pigs were killed and examined for evidence of Brucella abortus infection from five to six weeks after injection. An agglutination test was made on the guinea-pigs' serum for abortus agglutinins. The tissues were examined for lesions of the disease and cultures made from the spleens and livers, as well as from other organs when they showed suggestive evidence of the infection. Cultures were identified as Brucella abortus by the same methods as heretofore mentioned. The results of these examinations revealed Brucella abortus in either one or both tonsils from eight of the fifty-six patients. In three patients, Brucella abortus was recovered from both tonsils, while in the other five it was obtained from only one. The accompanying table summarizes the eight cases from which the organism was isolated. The protocol of case 8 is as follows:

History.—A white woman, aged 60, married, housewife, was admitted to the Strong Memorial Hospital, Jan. 17, 1932, with a chief complaint of intermittent fever. About six weeks prior to admission she noted that she felt weak and that much effort was required to complete her housework. About two weeks before the onset of her general malaise she had returned from an automobile drive through the New England states. Dec. 20, 1931, she felt definitely ill, and her temperature was elevated 1.5 degrees C. A daily record of her temperature showed that it was normal in the morning, rose during the day, and reached a maximum of from 38.5 to 39 C. (101.3 to 102.2 F.) during the late afternoon and evening. The patient felt worse during the height of the fever, perspired freely, and had frequent headaches. At night, sweating continued. She felt weak on awakening in the morning. These daily remissions of fever continued until the patient entered the hospital. Despite a good appetite, a gradual loss of weight occurred. Other symptoms noted during the febrile period prior to admission were a slight sore throat for two or three days at the beginning of the illness, marked soreness of both breasts for two days after fever was definitely established, and abdominal distress for two days one week prior to admission. This consisted of a sense of fulness, a dull ache across the upper part of the abdomen, gas and pyrosis beginning two or three hours after meals. Her local physician, Dr. L. F. Waters of Medina, N. Y., suspected undulant fever and his diagnosis was confirmed by an agglutination test on the blood serum. She was therefore admitted to the hospital. The past history was irrelevant. The family history was irrelevant. No other members of the household, consisting of her husband and several farm laborers, were ill.

The patient had always lived on a dairy farm. She had had no direct contact with animals but drank moderate amounts of raw milk and cream. There were no sheep, goats or swine on the farm. The cattle supplying the milk had never been tested for infectious abortion, but clinically the abortion disease had not been prevalent. However, it must be remembered that clinical evidence is of little value in determining the absence or presence of Brucella abortus infection in animals.

Examination.—The temperature was 38.4 C. (101.1 F.); the pulse rate, 102; respiration, 20. The blood pressure was 105 systolic and 70 diastolic. The patient was well developed but somewhat obese. She was somewhat dyspneic and definitely ill but showed no marked signs of distress. The skin and mucous membranes were normal in texture and color.

The following observations were made: A widely distributed varicosity of the superficial veins appeared on the left leg. Below the knee there was some evidence of an inflammatory reaction in some of the veins. Hearing on the left side was impaired. There was marked sclerosis of the arteries of the fundi of the eyes. The throat was injected and the tonsils were cryptic and scarred but very large, especially the right tonsil, which was red and showed punctiform hemorrhages. Both showed evidence of infection along the anterior pillars. The tonsillar lymph nodes in the neck were large and tender. There were persistent coarse râles at the posterior base of each lung. A loud systolic murmur was heard over the entire precordium. The peripheral vessels were moderately sclerotic. The spleen was not palpable.

Aided by a grant from the Metropolitan Life Insurance Company.

From the Department of Medicine, Division of Radiology of the University of Rochester School of Medicine and Dentistry, and Strong Memorial Hospital.

1. Mohler, J. R., and Traum, Jacob: Twenty-Eighth Annual Report of the Bureau of Animal Industry, U. S. Dept. of Agriculture, 1911, p. 147.
2. Carpenter, C. M.: Cornell Veterinarian **15**: 16, 1924.
3. Annual Report of the New York State Veterinary College, 1926-1927, p. 45.

Blood examination revealed: red blood cells, 4,950,000; white blood cells, 6,200; hemoglobin, 80 per cent. Differential: polymorphonuclear leukocytes, 60 per cent; basophils, 1 per cent; eosinophils, 1 per cent; lymphocytes, 25 per cent; mononuclears, 13 per cent. A repetition of the leukocyte count, January 22, gave 5,750. The electrocardiogram was normal. The Wassermann reaction was negative. A blood culture was negative.

Examination of the urine and the stool gave negative results.

An agglutination test with Brucella abortus and Brucella melitensis was positive, 1: 5,120.

A roentgenogram showed an enlarged left ventricle of the heart and tortuosity of the aorta.

Course.—The temperature made daily excursions from 37 to 39 or 39.5 C. (from 98.6 to 102.2 or 103.1 F.). The patient's only complaints were a mild sore throat, for which hot saline gargles were given, and some pain in her left leg from the varicosities. The latter condition was treated by an elastic stocking, ice packs, and elevation of the leg. Tonsillectomy was advised. The patient remained in the hospital from Dec. 29, 1931, to Jan. 23, 1932, when she was discharged to her home until the fever subsided, after which she was to return for tonsillectomy.

February 8, the patient was readmitted. She steadily improved for ten days at home and became afebrile. However, two days prior to admission she again noted a fever similar to the type described, with a maximum point of 39 C. (102.2 F.). The varicosities of her left leg again became painful.

Physical examination at this time revealed that the tonsils were not as acutely inflamed as on first admission and that the submaxillary lymph nodes were not enlarged. The other observations were approximately the same as before, with the exception of an anal fistula.

Blood examination revealed: red blood cells, 3,850,000; white blood cells, 5,200; hemoglobin, 70 per cent. The differential count was approximately the same as on the first admission.

The patient became afebrile one week after admission, at which time she developed a mild cystitis. B. coli was isolated from the urine. Following alkaline medication and forced fluids, the urinary symptoms subsided.

February 16, a sample of urine was centrifugated and injected into guinea-pigs for Brucella abortus infection; the result was negative. A stool was likewise examined for Brucella abortus by the Amoss method with the following modification: The agglutinated material was injected into guinea-pigs instead of cultured on Huddleson's dye medium; the result was negative.

February 18, the patient was given an intracutaneous injection of 0.2 cc. of killed culture of Brucella abortus suspension (approximately one billion organisms per cubic centimeter) on her left forearm.

February 20, the reaction was positive. There was a large, red, hot and painful area 7 by 11.5 cm. at the point of injection.

February 27, tonsillectomy was done. The tonsils were of moderate size, scarred and adherent. Recovery was uneventful.

The pathologist reported that microscopic section of the tonsils showed deep crypts containing small amounts of granular material. Polymorphs and round cells were abundant in the adjacent connective tissue. The injection of an extract from half of each tonsil into guinea-pigs resulted in typical abortus infection. The lesions produced were identical with those resulting from the injection of such experimental animals with bovine strains of Brucella abortus.

March 5, the patient was discharged from the hospital.

June 15, a communication from the patient stated that she had been afebrile since leaving the hospital and was feeling extraordinarily well.

Summary of Cases from Which Brucella Abortus Was Obtained

Patient	Date	Sex	Age Years	Occupation	Clinical Diagnosis	Description of Tonsils	Bacteriologic: Culture	Bacteriologic: Guinea-Pig	Comment
1 B. S. R.	6/ 7/26	♀	22	University student	Chronic sore throat and tonsillitis, six months	Right tonsil 1.5×1.5×1 cm.; abscess 0.5 cm. in one end; smaller abscesses 1-2 mm. scattered throughout tonsil tissue; Brucella abortus isolated; left generally enlarged but not abscessed	+	+	Lived on farm except when attending university; had always drunk large quantities of raw infectious milk
2 C. E. P.	6/ 7/26	♀	19	University student	Frequent colds and tonsillitis	The tonsils appeared similar; slightly enlarged and contained few 1-2 mm. abscesses; Brucella abortus isolated from only one tonsil	..	+	Drank moderate amount of raw milk known to contain Brucella abortus
3 E. T.	10/ 5/26	♀	4	Child	Obstructive tonsils and adenoids with cervical adenitis	The tonsils appeared similar; 1.5×1×1 cm.; small abscesses, 1-2 mm., throughout tissue; Brucella abortus isolated from each tonsil	..	+	Had been raised on raw milk after 1 year of age; supply child was given for several months prior to date of operation contained Brucella abortus
4 R. L.	10/ 6/26	♂	43	Farmer	Chronic tonsillitis	Tonsils slightly enlarged; one tonsil had small abscess 3 mm. at end; other tonsil from which Brucella abortus was recovered contained many small abscesses, 1-2 mm.	+	+	Herd was infected with Brucella abortus; drank milk from infected cattle
5 R. B.	10/11/26	♂	4	Child on farm	Enlarged tonsils with cervical adenitis	Tonsils similar; showed general enlargement; 2×1.5×1 cm.; Brucella abortus isolated from one tonsil only	..	+	Lived on farm and drank raw milk
6 J. S.	11/ 5/26	♂	23	University instructor	Subacute endocarditis and pulmonary tuberculosis	Tonsils not described; Brucella abortus isolated from one tonsil	..	+	Drank raw milk known to contain Brucella abortus; died approximately two years after tonsillectomy; cause of death unknown
7 D. D. M.	12/17/26	♂	20	University student	Sore throat and rheumatism	Tonsils greatly enlarged and abscessed; right 2.5×2×1.3 cm.; one abscess 3 mm. in diameter; Brucella abortus recovered; left 2.3×2×2 cm.; one abscess 4 mm. in diameter	..	+	Drank raw milk known to contain Brucella abortus; had been confined to bed several weeks with rheumatism (joint and muscle pains); symptoms disappeared shortly after tonsillectomy
8 G. A.	2/27/32	♀	60	Housewife on farm	Undulant fever; chronic tonsillitis; thrombophlebitis inner aspect right thigh; arteriosclerosis, general	Tonsils 2×1×1 cm. moderate size; scarred; crypts contained much pus; Brucella abortus isolated from both tonsils	—	+	See case report

COMMENT

It is difficult to evaluate the significance of the observations in the table. With the exception of case 8, the examinations were made at Ithaca, N. Y., five years ago, when most of the city's milk supply was unpasteurized and examinations of the raw milk showed that the mixed milk from nine of fifty herds examined contained Brucella abortus. Extremely virulent strains of the organisms were present in the milk from two of the infected herds that supplied a large percentage of the raw milk.

With the exception of patient 5, the patients from whose tonsils Brucella abortus was isolated had drunk raw milk known to contain Brucella abortus. Patient 5 was a child who lived on a dairy farm, but we were unable to obtain information concerning this herd or to examine the milk. However, many of the group from whose tonsils Brucella abortus was not isolated had consumed milk from the same infectious source. The amount of milk drunk by these persons, their resistance, and the number of abortus organisms in the milk are factors concerning which there is little, if any, accurate information. It may be that the recovery of Brucella abortus from the tonsil tissue was only a coincidence and its significance similar to that of the occasional finding at the same time of a few colon bacilli in such tissues. However, the data submitted concerning case 8 indicates that the tonsils were a probable focus for the infection. In most cases studied, many other bacteria were isolated in culture, chiefly streptococci and staphylococci. In the first case reported in the table, practically a pure culture of Brucella abortus was obtained, but a few colonies of Staphylococcus aureus were present. No attention was paid to such organisms. No doubt the failure to obtain Brucella abortus in culture from five of the seven cases was due to the presence of more rapidly growing types of bacteria. Two of the strains of Brucella abortus were examined by Dr. Wayne N. Plastridge of the Connecticut Agricultural College at Storrs, Conn. He designated the culture isolated from case 1 as a porcine type, while case 7, according to his observations, was of bovine origin. His determinations were based on the utilization of dextrose and on Huddleson's dye plate method.[4]

We do not desire at this time to convey the impression that Brucella abortus is a cause of tonsillitis or of hypertrophied tonsils. Nevertheless, in experimental and domesticated animals the infection localizes in lymph and lymphoid tissue, frequently producing a focal or general lymphadenitis, as well as a splenitis. At the onset of many cases of undulant fever there is a reddening and injection of the fauces, pharynx, tonsils and peritonsillar tissue, not unlike that seen in an acute infection of the upper respiratory tract. Cervical adenitis is not uncommon. That these pathologic changes are specific of Brucella abortus infection is not known. The organism may invade the tonsil and multiply or accumulate there until the resistance of the host is decreased from fatigue or from disease, permitting its invasion of the blood stream.

The patients whose tonsils were examined could not be followed closely. Exclusive of patient 8, the cases that gave tonsil cultures of Brucella abortus, so far as we know, had not shown evidence of undulant fever before or after operation, although no accurate histories were taken. There is a possibility that the endocarditis in case 6 may have been due to Brucella abortus, as has been observed especially in fatal cases of undulant fever. There is likewise a possibility that the so-called rheumatism in case 7 was undulant fever with a localization of the infection in the joints, which is frequently observed in this disease. The sex, age and occupation have no significance, because in the group of forty-eight persons not showing Brucella abortus in the tonsils were many young adults and children using the same raw infectious milk supply as did the four university students from whom positive cultures were obtained.

4. Huddleson, I. F.: Undulant Fever Symposium, Tr. Am. Pub. Health A., 1929, p. 18.

The most important deduction is that the presence of the organisms in the tonsils must be the result of ingesting dairy products containing Brucella abortus. The incidence of positive results undoubtedly depends on the virulence and the numbers of Brucella abortus in the raw milk supply. King[5] examined forty-nine pairs of tonsils collected from patients in the vicinity of Saratoga Springs, N. Y., using a technic similar to that used by us, and failed to find any evidence of Brucella abortus. Poelma and Pickens[6] of Maryland recently reported finding two pairs of tonsils infected with Brucella abortus from a total of 116 cases.

CONCLUSION

Brucella abortus has been isolated from eight of fifty-six pairs of tonsils.

Crittenden Boulevard.

Clinical Notes, Suggestions and New Instruments

ACTINOBACILLUS BACTEREMIA

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A man, aged 26, a butcher, who stated that he had had no previous illnesses, came to the Mayo Clinic, Oct. 19, 1931. The family history had no bearing on his illness. He was born in Germany and resided there until he came to this country, at the age of 14 years. Five years before his registration, while he was cutting meat, his knife slipped and entered his right thigh; this wound healed without infection but resulted in an arteriovenous aneurysm. He apparently was in normal health until Aug. 8, 1931. On that day, he felt tired and complained of a dull headache, and felt chilly during the day in spite of the fact that it was very warm weather. He continued with his work, and at 11 p. m. he collapsed in his shop. A physician found that his temperature was 103 F., and he was taken home and placed in bed. He continued to feel bad for three or four days, but the fever gradually disappeared, and on the fifth day he felt well enough to resume his work. August 13, while he was cutting beef, his knife again slipped and he

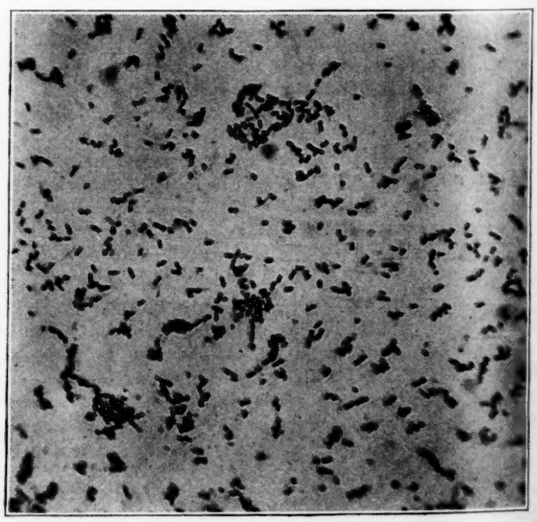


Fig. 1.—Actinobacillus from plain agar slant, twenty-four hours. Gram stain.

5. King, M. J.: New England J. Med. **201**: 918 (Nov. 7) 1929.
6. Poelma, L. J., and Pickens, E. M.: J. Bact. **23**: 112 (Jan.) 1932.

From the Section on Clinical Pathology and the Section on Cardiology, the Mayo Clinic.

received a superficial cut on the anterior abdominal wall. The wound healed again promptly, but in a few days he began to have an irregular fever, ranging from 99.6 to 102 F., and this continued to the time of his admission to a hospital associated with the clinic, October 19. He had been in bed ten weeks prior to his arrival at the clinic. His appetite had been poor, he had lost strength, and his weight had been reduced from 170 to 128 pounds (from 77 to 58 Kg.). He also complained

Fig. 2.—Actinobacillus: colonies on plain agar; culture 5 days old.

of aching pain in the muscles of the limbs and in other muscles. He stated that his shop dealt chiefly in meats that were subjected to federal inspection, but occasionally carcasses were obtained that did not receive federal inspection.

The patient was emaciated and sallow; his temperature at the time of admission was 100 F. His tonsils were of the buried type. There was a small right femoral arteriovenous aneurysm. The blood pressure was 125 systolic and 55 diastolic in millimeters of mercury; the pulse rate was 116 beats each minute. In the urine there were occasional erythrocytes, and in one specimen there was a faint trace of albumin. The concentration of hemoglobin was 70 per cent by the Dare method; erythrocytes numbered 4,030,000 and leukocytes from 12,100 to 16,400 in each cubic millimeter of blood. The differential count was almost normal. There was 14 mg. of urea for each 100 cc. of blood. Blood culture revealed a peculiar gram-negative bacillus. A number of other examinations and tests made in the attempt to exclude certain clinical conditions were negative.

The patient remained under observation at the clinic for twenty-four days and during this time had an intermittent, irregular fever ranging from 99 to 100 F. for ten days. In the second week of observation a transient left pleural rub developed, accompanied by pain, which disappeared twenty-four hours later and did not again reappear. There was no evidence of other visceral involvement at any time.

On the basis of the long history of intermittent fever we at first considered the possibility of subacute bacterial endocarditis, but in the absence of a previous history of rheumatic fever, of a demonstrable valvular lesion or of embolic phenomena, and in the presence of the peculiar organism obtained by blood culture, the diagnosis of subacute bacterial endocarditis was dismissed. Undulant fever was eliminated by the negative agglutination test. Absence of splenomegaly and rose spots, and the presence of low temperature at the time of our observation, and of negative blood culture for Eberthella typhi quite clearly eliminated typhoid from the diagnosis. The final diagnosis in the case was bacteremia resulting from Actinobacillus.

TREATMENT

The patient was given saturated solution of potassium iodide in doses of 15 minims (1 cc.) three times a day, and was dismissed from our care on the twenty-fourth day. We do not feel that the medication played any material part in the patient's recovery. He has apparently recovered completely. In a letter received from him in February, 1932, he stated that he is feeling well and has returned to his work.

BACTERIOLOGIC STUDY

Four consecutive blood cultures, taken, respectively, October 20, 23 and 27 and November 9, were positive and contained what appeared to be the same organism. At first, the number of colonies in each cubic centimeter of blood was about 20, but the number had decreased to 1 colony in each cubic centimeter at the time of the last culture. At the end of forty-eight hours of culturing, the colonies were from 2 to 5 mm. in diameter, flat, round, and with slightly irregular margins. The larger colonies presented a curiously wrinkled appearance, with a radial arrangement which divided them into five or six sectors, after the manner in which a pie is cut. The consistency was membranous and moist; an entire colony could be removed by pulling at one edge. The growth in broth was much poorer and after several days consisted of flocculi, near the top of the tube or caught within the fibrin formed from the blood.

Morphologically the organisms were rather small, bipolar, gram-negative bacillary forms with an occasional chain of two or three elements (fig. 1). In subculture, growth was readily obtained on nutrient agar and broth, but it was less profuse than when blood was added (figs. 2 and 3). Cultures on nutrient agar slants, made from the primary growth, resulted in a dry, crusty growth after eight to ten days, but this characteristic was lost after several generations of stock culture had been kept on blood agar. Broth cultures were turbid, with a pellicle and sediment. Growth was poor in nutrient gelatin. Liquefaction did not occur in three weeks at 37 C. Motility was negative in twenty-four hours in broth cultures. Ehrlich's test for indole was weakly positive after four days in nutrient broth. Sugar fermentation tests were negative after three weeks, except for a slight acidity in dextrose, maltose, mannite and saccharose. Growth on potato was poor or failed entirely.

The results of inoculation of animals were for the most part negative. Rabbits were killed in less than twenty-four hours by from 1 to 2 cc. of a moderately heavy suspension given intravenously, without the production of any gross lesions. Subcutaneous inoculations gave negative results. Intraperi-

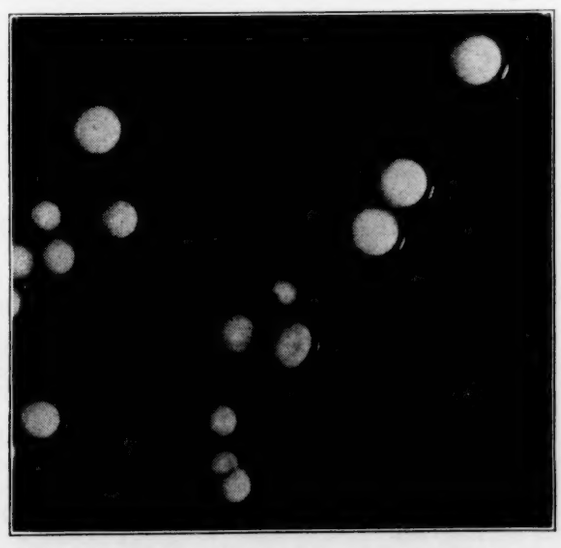


Fig. 3.—Actinobacillus: colonies on blood agar; culture 5 days old.

toneal inoculation of guinea-pigs with about the same amount of culture either resulted in death within twenty-four hours, from general peritonitis, or in recovery after a short period, with the following exception: One guinea-pig, after receiving 2.5 cc. of suspension intraperitoneally, appeared ill for two days, and then seemed to be recovering on the third and fourth days. The animal was then killed and examined, and evidence of resolving peritonitis with pustular nodules on the omentum and adhesions to the liver was found. The Strauss reaction

was not obtained, although care was taken to use male guinea-pigs in all instances.

Serologic tests gave the following results: The patient's serum agglutinated the organism from his blood in a dilution of 1:80. His serum also gave a very strong complement fixation reaction with Pfeifferella mallei antigen. Agglutination tests were negative for Alcaligenes abortus, Pasteurella tularensis, and organisms of the typhoid-paratyphoid group. In order to compare the cultural and serologic characteristics of the organism with those of Actinobacillus lignieresi, a culture of the latter was sought. Since no cultures of this organism were available in this country as far as could be learned, an attempt was made to isolate one from bovine material. With the cooperation of Swift and Company and the meat inspection service of the Bureau of Animal Industry in St. Paul and Chicago, bovine material was obtained and several cultures were isolated which resembled closely the published description of Actinobacillus lignieresi and also the strain isolated from the patient. Rabbit immune serums prepared with certain of the bovine strains agglutinated the human strain, and conversely the immune serum prepared with the human strain agglutinated certain of the bovine strains. We have therefore concluded that the organism in question is Actinobacillus lignieresi, an idea which seemed the more probable on account of the recent occupation of the patient and the history of his having cut himself while engaged in his work.

COMMENT

The actinobacillus was described in 1902 from South America by Lignières and Spitz[1] as the causative agent of a disease of cattle which simulated actinomycosis. It has been reported from Canada and various European countries as a disease of cattle, but, as far as we have been able to determine, it has not been reported from the United States. One previous case of actinobacillus infection of man has been reported by Ravaut and Pinoy[2] in France. This was a case of meningitis, and the patient recovered. It seems unlikely that the case of meningitis reported by Gerdine and Pease[3] in this country was due to the actinobacillus, since their organism was evidently anaerobic and the actinobacillus is primarily aerobic.

The relationship between the actinobacillus and the organism of glanders is not known. They bear a strong resemblance to each other culturally, and according to preliminary tests there is some indication that they may be related serologically. It seems probable that actinobacillosis of cattle is prevalent in this country, an idea which is being investigated more fully.

1. Lignières, J., and Spitz, G.: Contribution a l'étude, à la classification et à la nomenclature des affections connues sous le nom d'actinomycose, Centralbl. f. Bakt. **35**: 294-308; 452-458, 1904.
2. Ravaut and Pinoy: Actinobacillose à forme meningée observée à Paris chez un Argentin, Presse méd. **1**: 49-50 (Jan. 21) 1911.
3. Gerdine, Linton, and Pease, Dorothy: Actinobacillus Meningitis, Am. J. Dis. Child. **32**: 878-888 (Dec.) 1926.

ACTINOBACILLUS BACTEREMIA

A SUPPLEMENTARY REPORT

WALTER LAWRENCE, M.D.; IRENE NEUHAUSER, M.D., AND KATHARINE M. HOWELL, M.D., CHICAGO

This is a report of the treatment and further study of the case of actinobacillus bacteremia reported by Thompson and Willius in this issue. Since the recovery of the patient was obviously due to the therapy used, it seems advisable to make this report.

The patient referred to first presented himself at our office, Aug. 29, 1931. He stated that he had suffered with influenza for the preceding two weeks. The symptoms were intermittent fever, chills, profuse perspiration, especially at night, and severe migratory pains in the chest, joints and muscles. This was also accompanied by some abdominal discomfort and by diarrhea. At the time of this examination the patient was moderately sick. His temperature was 102.4 F.; the pulse was 108, and respirations were 32. The ears and nose showed no pathologic condition; the tonsils were moderately hypertrophied and the pharynx was injected. There were no signs of hyperthyroidism. The lungs were hyperresonant, with a few scattered moist râles. There was a slight systolic murmur, heard best over the apex, with a markedly accentuated second sound. The heart was not appreciably enlarged. There was some tenderness over the abdomen. The liver and spleen were not palpable and there were no palpable masses in the abdomen.

A tentative diagnosis of rheumatic endocarditis was made, and the patient was ordered to bed and treated symptomatically.

During the next two weeks the patient's temperature was irregular, ranging from 98 to 103 F., higher at night, and accompanied by profuse perspiration.

For the two succeeding months the patient was not under our observation, but from the history obtained from the patient and from the physician who saw him, there was apparently little change in the course of the disease. There were slight remissions which lasted for a few days only, to be followed by other acute attacks.

October 19, the patient entered the Mayo Clinic, where Thompson and Willius established the diagnosis of actinobacillus infection.

November 23, when the patient was next examined by us, the symptomatology was practically unchanged. The white blood cell count was 13,750; red count, 4,500,000; hemoglobin, 80 per cent. The differential count showed 73 per cent neutrophils, 26 per cent lymphocytes, and 1 per cent basophils. A chest roentgenogram and an electrocardiogram were negative. The basal metabolism was plus 5. Blood cultures were repeatedly positive for a small gram-negative organism. The temperature was still irregular and the pulse remained about 100.

On the night of December 14, one of us was called to the house to see the patient. In the few hours preceding he had developed excruciating pains across the chest and was expectorating blood-tinged sputum. The temperature was 103, the pulse rate was 130 and respirations were 48. The patient was immediately hospitalized and given emergency treatment. The next day he had apparently recovered from this acute attack.

While at the Mayo Clinic the patient had been put on potassium iodide, and on his return home this therapy was continued. After the acute attack the potassium iodide was discontinued and intravenous injections of sodium cacodylate, 0.45 Gm., were given on alternate days.

At the end of two weeks the patient was able to return to his home, and for the following eight weeks he received weekly one injection each of neoarsphenamine and sodium cacodylate (0.3 Gm. and 0.45 Gm., respectively). Four days after this therapy was begun the patient's temperature dropped to normal. From this time the temperature has ranged from 96-97 F. in the forenoon to 98-98.6 in the afternoon. The cardiac manifestations have gradually subsided and at present the heart sounds are normal. The muscular and precordial pains have also disappeared.

BACTERIOLOGY

After the patient had returned from the Mayo Clinic with the diagnosis of a hematogenous infection with the actinobacillus, he was sent to the Nelson Morris Institute for blood cultures. Here an entirely independent study of the patient's blood was made. The first culture, November 25, yielded a small, pleomorphic, gram-negative, nonmotile, non-spore forming bacillus that was apparently identical in its morphologic and cultural characteristics with the actinobacillus described by Ravaut and Pinoy[1] and by Lignières and Spitz.[2] A second blood culture, Jan. 5, 1932, after the patient had had a relapse, again contained this bacillus, but blood cultures on February 22 and March 21, after the patient had been treated with sodium cacodylate and neoarsphenamine, remained sterile.

Each time that blood was taken for culture, a few cubic centimeters was reserved for agglutination tests. The agglutination reactions were apparently specific: the serum of the patient agglutinated the organism obtained from his blood (1:320 serum dilution) and did not agglutinate other gram-negative bacilli, such as Brucella abortus, Brucella melitensis, Bacterium tularense or strains of the typhoid or dysentery groups; antiserums of these bacteria and serums from normal persons did not agglutinate the actinobacillus.

From the Municipal College of Chicago and the Department of Bacteriology of the Michael Reese Hospital. The bacteriologic study was aided by a grant from the Albert Kuppenheimer Fund.

At the suggestion of the editor, this abstract was prepared from our original paper in order to avoid repetition of portions of the previous article, and at the same time to bring out the response to therapy, and the confirmation of bacteriologic study.

1. Ravaut and Pinoy: Actinobacillose à forme meningée observée à Paris chez un Argentin, Presse méd. **19**: 49 (Jan. 21) 1911.
2. Lignières, J., and Spitz, G.: Actinobacillose, Rev. Soc. méd. argent. **10**, 1902.

The laboratory animals (guinea-pigs and rabbits) injected with the actinobacillus, whether by the intravenous, intraperitoneal or subcutaneous route, all survived. One rabbit appeared ill for a day or two but completely recovered.

COMMENT AND CONCLUSION

In the only other report of human infection with the actinobacillus, by Ravaut and Pinoy in 1909, the therapy used was not applicable to our case. This was a case of meningitis following grip, otitis media and mastoiditis. The only therapy used was lumbar puncture, and after two punctures the patient's condition improved. Other than information concerning a recurrent otitis media, further facts are not known.

Since bovine infections are successfully treated with potassium iodide, this would seem the logical therapy to use in human infections. Our patient was given potassium iodide for a period of five weeks and showed no improvement; in fact, he states that he had nausea in addition to his original symptoms. When arsenical therapy was instituted, however, the patient rapidly improved; the symptoms subsided and the patient gained 30 pounds (13.6 Kg.). In consideration of the facts that the patient is free from symptoms, has had two successive negative blood cultures and has regained and maintained his former weight, we believe that the patient is cured.

DERMATITIS VENENATA DUE TO DEERSKIN GLOVES

HOWARD J. PARKHURST, M.D., TOLEDO, OHIO

This case is interesting because of its unusual etiology, and also because it was at first mistaken for an industrial dermatosis.

P. S. N., a plumber, aged 50, first consulted me, Oct. 27, 1931, with an ill defined brownish erythematous scaling eczematoid eruption on the hands and wrists, less pronounced on the palms. The eruption was of six weeks' duration and was thought to have been caused by contact with some occupational irritant. It subsided in three weeks with the use of a mild protective antipruritic ointment and fractional doses of roentgen rays. The continued use of zinc oxide ointment as a protective measure was advised.

April 2, 1932, the patient reappeared with an acute erythematous vesicular eruption on the hands, which was said to have appeared within four hours after he had worn deerskin gloves, which he had not put on since October, 1931, the date of the first outbreak. During the interval there had been no eruption.

A patch test with a moistened piece of tanned, undyed deerskin, 1.5 cm. square, was made on the flexor surface of the left forearm, and this test was strongly positive within twenty-four hours, while two similar control tests with other leathers remained negative. The deerskin patch, applied similarly to two other persons for forty-eight hours, did not cause a visible reaction. It could not be ascertained what substances had been used in tanning the deerskin.

The patient stated that he had never touched deerskin before. He had eaten venison once or twice, with no apparent ill results, but had never killed or dressed a deer.

The gloves were discarded, soothing applications were prescribed, and the dermatitis rapidly subsided.

It is apparent that this dermatitis was not of occupational origin and that it was caused by contact with deerskin or substances used in its tanning. The leather had not been dyed. Other leathers had never caused noticeable irritation.

In a brief survey of the literature, no other case of deerskin dermatitis could be found. Recently, however, George M. Lewis[1] has reported two cases of dermatitis venenata of the feet and ankles in which patch tests revealed sensitization to shoe leather or perhaps to substances with which it had been treated. Lewis refers to a similar case, reported in the German literature by Bloch, in which sensitization to shoe leather was demonstrated. Since this report was submitted for publication, Anderson and Ayres[2] have reported a case of dermatitis venenata due to shoe leather. The possibility of confusing this with an eruption due to dermatophytosis is emphasized, and in my case its differentiation from industrial dermatoses is also important.

316 Michigan Street.

1. Lewis, G. M.: Dermatitis Venenata Due to Shoe Leather, Arch. Dermat. & Syph. **24**: 597 (Oct.) 1931.
2. Anderson, N. P., and Ayres, Samuel, Jr.: Dermatitis Venenata Due to Shoe Leather, J. A. M. A. **99**: 25 (July 2) 1932.

Special Article

VITAMIN D

RUTH COWAN CLOUSE, S.M.
CHICAGO

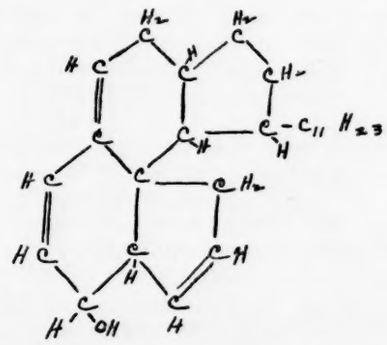
(Concluded from page 222)

[EDITORIAL NOTE.—The following article is one of a series on the Present Status of the Knowledge of Vitamins, prepared under the auspices of a committee composed of Morris Fishbein, chairman, Lafayette B. Mendel and Julius Hess, representing a joint committee of the Council on Pharmacy and Chemistry and the Committee on Foods. These articles have been considered by the Council on Pharmacy and Chemistry and by the Committee on Foods and are published under their auspices. The opinions expressed are those of the authors and not necessarily the opinions of the Council on Pharmacy and Chemistry or the Committee on Foods.]

THE CHEMISTRY OF VITAMIN D

All efforts to prepare vitamin D in a pure state and to determine its composition, structure and chemical properties have so far met with failure. Nevertheless, a considerable amount of information concerning the nature of the vitamin has been obtained and it is possible that it may be isolated in a pure form some time in the near future.

Four groups of investigators, one in the United States, one in England, one in Germany and one in Holland, are actively engaged in the study of this problem. The American group is composed of Bills



Structural formula for ergosterol (Windaus).

and his associates of Mead Johnson & Co.; the English group of Bourdillon, Webster and others at the National Institute for Medical Research; the German group of Windaus and his associates at the University of Göttingen, supported by the I. G. Farbenindustrie and by E. Merck, commercial manufacturers of Vigantol; and the Dutch group of Reerink and van Wijk and their associates, who are carrying on a cooperative research supported by the Pharmacotherapeutic Institute of the University of Leyden and the N. V. Philip Gloeilampenfabriken of Endhoven, Holland.

The Chemistry of Ergosterol.—The problem of the chemical nature of vitamin D has been attacked through the study of the chemical changes that take place when ergosterol is irradiated. Before discussing these changes, a brief summary of the chief chemical and physical properties of ergosterol itself will be helpful.

In its pure form, ergosterol is a white crystalline solid, melting at from 166 to 183 C., the exact melting point depending on the degree of hydration. It is sparingly soluble in alcohol and other organic solvents, and is readily crystallized therefrom.

According to Tanret, who first discovered this sterol, it has the molecular formula $C_{27}H_{42}O$. According to Windaus, it probably has the structure given on the preceding page. As the formula indicates, it is a highly unsaturated compound, sensitive to oxidation even by the oxygen of the air, and capable of forming esters with acids, both organic and inorganic.

Optical Rotation: A pure preparation is strongly levorotary. When sodium light is used, the specific rotation at 20 C. = —132 ($[a]_D^{20}$ = —132). When mercury is used, the specific rotation = —171 ($[a]_{5461}^{20}$ = —171).

Absorption of Ultraviolet Rays: Many chemical compounds have the power of absorbing light rays of definite wavelengths. The "absorption spectrum" of each individual compound is as characteristic of it as any other of its physical properties and therefore may be used as a very delicate means of identification. Ergosterol exhibits a strong absorption in the ultraviolet, with well defined maxima at 260, 270, 282 and 293.5 millimicrons.

Isomerism: Many isomers of ergosterol exist, some of which, according to Bills, occur naturally and some of which may be prepared only in the laboratory, by the action of acids. Of those which are artificially prepared, some are activatable and some are not. Also, some are mutually transformable with others, and some are not.

The iso-ergosterols prepared by the action of acid catalysts are exceedingly difficult of separation and no one of them has yet been prepared in pure form. A sufficiently clear separation has been made, however, to establish the following points: In physical properties the iso-ergosterols differ from one another chiefly in specific rotation, very little in melting point or crystal form. The absorption spectrums of those prepared by Bills were strikingly similar, exhibiting a maximum absorption at 248 millimicrons. In fact, he writes, "Iso-ergosterol may be spoken of loosely as a substance characterized by this band."

Changes Taking Place on Irradiation: When ergosterol is irradiated with ultraviolet rays, a number of important changes in its physical and chemical properties occur.

First, the crude irradiation product has a much lower melting point and a much greater solubility in alcohol and other organic solvents than does ergosterol itself. It no longer forms an insoluble compound with digitonin, and the optical rotation changes from strongly levorotary to weakly levorotary or even weakly dextrorotary.

At the same time the absorption spectrum undergoes a marked transformation. An initial increase in intensity at 270 and 280 millimicrons is followed by a gradual decrease at all wavelengths longer than 250 millimicrons. Coincident with the final disappearance of all absorption bands characteristic of the original unirradiated ergosterol, a new band, variously located by different investigators at 240, 245 and 248 millimicrons, appears. This band, it will be remembered, is also characteristic of the iso-ergosterols. Its appearance is marked by the disappearance of all antirachitic potency.

Many attempts have been made to identify vitamin D with one or another of the absorption spectrums that appear during irradiation. Indeed, Bills has recently remarked that "nearly every investigator of activated ergosterol has attributed to vitamin D the absorption maxima of the preparation he investigated." But one by one the various theories proposed have had to be abandoned. The majority of investigators now believe that in all probability a number of products—Windaus says at least five or six—are formed by the action of ultraviolet rays on ergosterol. Among these is vitamin D, which very possibly exists in more than one form, one of which may absorb in the region of 265 to 270 millimicrons and another of which may not absorb at all (table 4).

Evidence for the view that some forms of vitamin D do not absorb ultraviolet rays is furnished by the very careful parallel biologic and spectrographic studies performed by Bills, Honeywell and Cox in 1928. In these experiments, the development and decline of potency in the irradiation products was very accurately followed. Observations of the absorption spectrums of each of the products tested biologically showed that no significant changes occurred until after the potency had begun to decline. Then the band at 260 millimicrons began to shift and make way for the new band at 248 millimicrons. When this band appeared, the antirachitic potency was almost entirely gone. These data would indicate that the new absorption bands are due to degradation products and not to the vitamin itself.

TABLE 4.—*Physical Constants and Antirachitic Potency of Concentrated Vitamin D Preparations*

Investigator	Shape of Crystal	Melting Point, C.	Specific Rotation	Absorption Maxima, Millimicrons	Antirachitic Potency, Minimum Daily Dose γ *
Angus, Askew et al. (Calciferol)	Needles	123-125	$[a]_{5461}^{20°}$ = +260 in alcohol	270	0.05
Windaus	Needles	122-123	$[a]_{5461}^{18°}$ = +169 in acetone	265-270	0.08
Reerink and van Wijk	Not reported	115-117	$[a]_D$ = +100 in ether	Not constant	Not reported
Jendrassik and Kemenyffi	Needles	38	Not reported	No absorption	0.01
Bills	Resin	....	$[a]_{5461}^{20°}$ = +12	270	0.07

* 1 γ equals 0.001 mg.

Further support for the view that the vitamin does not absorb is furnished by the fact that two Hungarian investigators, Jendrassik and Kemenyffi, of the National Hungarian Hygienic Institute at Budapest, have reported the preparation of a highly active crystalline product which has no appreciable absorption in the ultraviolet. Also Bills and his associates have found that an active resin prepared from irradiated ergosterol and kept in air for a total of forty-five days showed a gradual decrease in absorption but no appreciable change in antirachitic potency. When this resin was heated at the end of the forty-five day period, the absorption bands entirely disappeared but the product retained approximately half of its original potency.

Crystalline Vitamin D Preparations.—As early as 1923, Dubin and Funk succeeded in obtaining a very small quantity of yellowish brown needle-like crystals from an extract of cod liver oil. Much more recently, four different groups of investigators have isolated from irradiated ergosterol a highly purified crystalline substance of marked antirachitic potency. Although

prepared by different methods, these products are all much alike but by no means identical.

Some of the more important data concerning these crystalline preparations have been brought together in table 4. Figures for a highly active resin prepared in the Mead Johnson laboratories are also given for purposes of comparison.

It will be noted that the antirachitic potency of the various preparations is in general about twice that of the English standard solution of irradiated ergosterol. The fact that they differ markedly in physical properties such as melting point and specific rotation may mean either that the crystals are not pure or that the vitamin may occur in slightly different forms.

So far the various preparations have resisted further attempts at purification. The English investigators especially are inclined to believe that their product, which they have called "Calciferol" because of its calcifying properties, is a pure substance which represents at least one form of the vitamin. Since crude irradiation products of much higher potency have been prepared and since the mother liquors from which the crystals are deposited are still potent, one must conclude either that the separation of the vitamin has not been complete or that more than one form of the vitamin exists.

It is entirely possible that none of these preparations represents any form of the vitamin in a pure state. But even if this should prove to be the case, their preparation marks a great advance toward the isolation of vitamin D.

Molecular Structure of Vitamin D.—The crude products of irradiation, freed from ergosterol by precipitation with digitonin, have the same molecular weight and give evidence of the same degree of unsaturation as ergosterol itself. When burned in the calorimeter they give off, gram for gram, the same amount of heat. Irradiation has evidently not caused any change in the number of carbon and hydrogen atoms, or in the number of double bonds contained in the molecule. The hydroxyl group also apparently remains intact, since the irradiation products are capable of forming esters with organic acids. The esters do not have any antirachitic potency, but the active substance may be recovered by hydrolysis.

The molecular structure of vitamin D must therefore be very similar to that of ergosterol. Probably, vitamin D is a simple isomer of ergosterol, formed by a rearrangement of the atoms in the molecule, the details of which are not as yet understood.

STABILITY

In Cod Liver Oil.—The question of the stability of vitamin D is of real significance to the purchaser of cod liver oil because a considerable time must necessarily elapse before this product reaches the retail market. According to Poulsson, the number of fish that come to the shores of Norway each year for spawning is not constant but on the contrary varies greatly from year to year. In seasons when the fish are abundant, the quantity of oil manufactured may be in excess of the demand and some of it may have to be held over until the next season before it is sold. Thus it may easily happen that the oil given to a baby is at least two years old.

Fortunately, however, the antirachitic vitamin in cod liver oil appears to be remarkably stable. It can be distinguished from vitamin A because it resists long periods of oxidation at moderately high temperatures (100 C.). Its chemical nature can be studied because it would also resist the heating with alkali which is necessary for the saponification of the fat. Recently Poulsson has found that it will survive long periods of storage, since two samples which had been kept in a cold place protected from light for twenty-six years had a vitamin content apparently identical with that of fresh Norwegian oil.

In Irradiated Ergosterol.—The antirachitic potency of irradiated ergosterol dissolved in oil seems to be just as stable as that of cod liver oil. There has been, of course, no opportunity to examine any twenty-six year old samples, but those which have been kept for a year or more have not suffered any loss of potency.

Even the dry irradiation products will withstand storage either in vacuo or in air for several months without appreciable destruction of the vitamin. High temperatures of 180 C. or higher, or a combination of oxygen with high temperatures, will, however, destroy it.

TOXICITY OF VITAMIN D

One of the earliest investigations designed to demonstrate the effects of large doses of vitamin D was that of Kreitmar and Moll of the research laboratories of E. Merck and Company in Germany. In the course of this investigation it developed that exceedingly large doses, from 10,000 to 100,000 times the minimum protective dose, caused a rapid loss of weight, followed by death within a short time, not only in white mice and rats but also in guinea-pigs, rabbits, cats and dogs. All these animals presented the same picture of definite and severe disease—loss of appetite, rapid loss of weight, severe emaciation and decided decrease in vigor. Often a diarrhea developed, and the hair became rough and shaggy, and took on a greasy appearance. Death followed in varying lengths of time for different animals, from an average of ten days for the rabbit to thirty-six days for the guinea-pig.

After death, enormous deposits of calcium were found in the walls of the blood vessels and of the vital organs, evidence that calcification had been stimulated to the point at which the mineral was deposited in any and all tissues which would receive it, whether or not it was needed or even useful there.

Further work by other investigators has shown that very often the blood calcium or phosphorus or both are raised much above normal levels. The excretion of calcium and phosphorus shifts from feces to urine, and the mineral balance, which is at first increased, may later be greatly decreased or may become strongly negative, indicating a loss of calcium and phosphorus from the body as a whole. In advanced stages of intoxication the mineral content of the bones may be considerably below that of normal animals.

A few investigators, notably Hoyle and his associates in England, have had difficulty in reproducing this train of symptoms and at one time questioned the toxicity of vitamin D preparations. These early difficulties have now been traced to the type of diet used, the important factor being the quantity of calcium and phosphorus which it contained.

Influence of the Calcium and Phosphorus Content of the Diet.—One of the first observations of the effect of the calcium content of the diet on the toxicity of vitamin D preparations was that of Bills and Wirick, who noted that the addition of 3 per cent calcium carbonate to their normal stock ration greatly increased the toxic effects of a given dose of irradiated ergosterol. Similar observations have been made by Harris and

Innes, who used the Steenbock rickets-producing diet 2965. When the calcium content of the diet was reduced to that contained in the corn and wheat gluten alone (practically 0 per cent), almost no ill effects were observed even with such enormous doses as 10 mg. of irradiated ergosterol (100,000 times the minimum antirachitic dose) daily for each rat. When varying quantities of calcium and phosphorus were added to the diet, each increase in mineral content resulted in an increased severity of the symptoms.

Varying the calcium-phosphorus ratio also affected the results, the most marked symptoms being observed on the high calcium-low phosphorus diets. Harris and Innes estimate that at least eight times as much irradiated ergosterol is needed to produce loss in weight at an equal rate on a high phosphorus-calcium free diet as on a normal calcium diet.

Abnormal calcification of the tissues occurred only on the high calcium diets. On diets low or entirely lacking in calcium the animals lost weight rapidly and died within a short time, but no calcification of the tissues occurred. The bones, however, became soft and fragile, and presented the appearance of severe rickets except that in addition the subepiphyseal spongiosa also had disappeared.

These results may be interpreted as throwing considerable light on the mode of action of vitamin D. As Harris and Innes see them, the functions of vitamin D are to facilitate the absorption of calcium and phosphorus from the intestine and to maintain the level of calcium and phosphorus in the blood. On high calcium diets, huge quantities of calcium may be absorbed, enough to raise the blood calcium far above normal levels. The kidneys dispose of a certain amount of the excess by increased excretion of calcium in the urine, but it cannot all be taken care of in this way, and the calcium is therefore deposited in any of the soft tissues of the body which will receive it.

If the calcium of the diet is low but vitamin D is high, the calcium level of the blood must be maintained. Since the calcium cannot come from the intestinal tract it must be taken from the bone, from the trabeculae first, and later, if this supply is not sufficient, from the shaft also.

The Margin of Safety.—Because of differences in the potency of the products used, it is difficult to make any exact statement concerning the size of dose necessary to produce toxic effects. In short time experiments, however, disastrous results are not apparent on normal diets until the dose administered reaches at least from 25,000 to 50,000 times the minimum antirachitic dose.

In experiments continued for three or four generations, harmful effects which may not be apparent in the first generation may appear in the third or fourth. For example, Light, Miller and Frey of the Fleischmann Laboratories have found that in rats fed the Steenbock diet 2965, doses of 40 units daily, continued throughout three or four generations, have no effect on the mineral metabolism. No pathologic calcification of the tissues occurred, and the ash of the bones was normal. The fourth generation of these rats, however, was much more sensitive to overdosage (6,000 units daily) than were young, normal rats whose ancestors had never received any excessive amounts of vitamin D.

The harmful effects of considerably larger doses of 2,500 units daily were just noticeable in the first generation but were marked in the fourth. The fourth generation rats were very lame in the hind legs, apparently because of spontaneous fractures of the tibia, and the long bones were very low in ash. The head of the long bone was hypercalcified, but the shaft was so soft that it could be bent with the fingers.

Evidently disastrous results are produced in the first generation only when enormous doses are fed. Smaller doses, just on the verge of toxicity in the first generation, may produce a cumulative effect in the third or fourth. The fact should be emphasized, however, that even these doses are several thousand times the minimum dose required to prevent or cure rickets.

THEORIES CONCERNING THE CAUSE OF TOXICITY

Thus far in this discussion it has been assumed that the toxic symptoms produced by enormous doses of irradiated ergosterol are caused by excessive amounts of vitamin D. Opinion on this point is, however, divided, and certain investigators, notably Windaus and his associates at the University of Göttingen, believe that the toxic effects may be produced not by vitamin D but by other substances produced simultaneously with it by the action of ultraviolet rays. Their reasons for this belief will be discussed in the following paragraphs.

Relation of Antirachitic Potency to Toxicity.—In general, the toxicity of irradiated ergosterol preparations runs parallel with their antirachitic potency, the most potent products being at the same time the most toxic. Generally speaking, too, the same influences that destroy antirachitic potency will also destroy the toxicity.

However, Windaus and his associates find that certain influences, particularly high temperature and hydrogenation, may destroy the antirachitic action but leave the toxicity unaltered, and that antirachitic potency and toxicity are not destroyed at the same rate by overirradiation, oxidation or heating.

But although it is possible to prepare a product which is toxic but not antirachitic, by destroying the antirachitic potency after it has been developed, it has never been possible to do the opposite; that is, prepare a product which is antirachitic but not toxic. This leads Windaus to suggest that while it is possible that there are two separate factors, it is also possible that the two effects arise from the same substance, which is capable of alteration so as to lose its antirachitic action without losing its toxicity.

Influence of the Medium in Which Ergosterol is Irradiated.—Harris and Moore have found that excessive doses of irradiated ergosterol exhibit toxic properties whether they have been irradiated dry, in an atmosphere of nitrogen, in solution in alcohol, or dissolved in oil. Bills and Wirick also state that there is "no great difference in the toxicity of ergosterol irradiated in oil, in ether under a reflux, or as crystals in air, provided the antirachitic potency of the preparations is the same."

Hoyle, however, believes that the toxicity is more readily developed when ergosterol is irradiated in alcohol than when irradiated in other solvents, for example, in oil. Support for this opinion is furnished by a recent study reported by Kern, Montgomery and Still. In this study the effects of large doses of ergosterol irradiated dry, in solution in alcohol, and in ether were compared. When sufficiently large doses (from 25,000 to 100,000 times the minimum curative dose) of any of these preparations were given, marked differences in the calcium and phosphorus balance, and in the paths of calcium and phosphorus excretion, were observed. Although the antirachitic potency of the

ergosterol irradiated in alcohol was only half that of the other two preparations, the shift in calcium and phosphorus excretion was much more marked when this preparation was fed. This is interpreted to mean that a "profound disturbance in calcium metabolism" had taken place and that ergosterol irradiated in alcohol is more toxic than that irradiated dry or in ether.

No other signs of greater toxicity were observed, however, and the authors take pains to state that they believe that the method of irradiation is not the only or even the main factor involved.

Toxicity of Crystalline Vitamin D Preparations.—Further argument for the theory that excessive amounts of vitamin D are in themselves toxic is the fact that the crystals of "Calciferol," prepared by the British group of investigators, are as toxic as the original irradiation product from which they were derived.

Toxicity of Cod Liver Oil.—It is also true that very large doses of cod liver oil or of its concentrates will produce some of the results obtained with irradiated ergosterol. For example, Collaza, Varela and Rubino report that daily doses of cod liver oil administered to rats on a rickets-producing diet cause failure of growth, hypercalcification of the epiphyses of the long bones, and the deposition of calcium in the walls of the arteries, stomach and heart. Hess, too, reports that excessive amounts of the oil may lead to a loss of inorganic salts from the skeleton and that the blood calcium of young rats may be raised to abnormally high levels by from thirty to forty times the minimum protective dose. "The reason hypercalcemia rarely develops in infants as a result of cod liver oil medication," he writes, "is simply that one cannot give more than about from six to eight teaspoonfuls daily."

Summary.—At present it must be said that the case for the existence of a separate toxic factor, distinct from vitamin D, has not been proved. That there is strong evidence for such a factor cannot, however, be denied, and the results of future work must be awaited to settle the point.

DISTRIBUTION OF VITAMIN D

Cod Liver Oil.—Although other fish oils have proved to be as rich in vitamin D as cod liver oil, or even richer, the latter still remains the most important natural source of the vitamin.

Most of the cod liver oil used for medicinal purposes today comes either from Norway or from Newfoundland. There is a general impression that the oil from Norway is the superior oil, but as a matter of fact there is now little difference between them.

Today the direct steam process is used almost exclusively in the manufacture of medicinal oil. The livers from fresh cod are washed and steamed for about twenty minutes, until the liver tissue has softened and the oil is freed. The crude oil is skimmed off and placed in tanks to allow the water to settle, then chilled to remove fats of high melting point which might solidify during storage, and finally filtered and bottled as medicinal cod liver oil.

A high grade of medicinal oil is light yellow and does not have any objectionable taste or odor aside from a slight fishy smell when the oil is held in the mouth. If exposed to light and air, however, it quickly becomes rancid, and a disagreeable taste and odor develop. Its vitamin content is also diminished, particularly its content of vitamin A.

Variations in Potency.—Cod liver oil is not in any sense a uniform product. Different samples may vary considerably in such chemical and physical "constants" as specific gravity, iodine number and saponification number. It is not surprising to find, therefore, that its vitamin content also is a variable quantity. Hess, Bills and Honeywell have found that oils from individual cod fish may vary as much as a thousand times in potency, the differences being due chiefly to the size and amount of oil in the liver. Small, lean livers yield oils of very high antirachitic potency, while large, fat livers give oils which are much less active.

The commercial product, however, represents a mixture of oils obtained from vast numbers of livers. Different samples may vary somewhat in potency, but according to Bills the variation is less than might be expected or than is commonly supposed. "One seldom finds," he writes, "a pure specimen which is more than twice or less than half as potent as the average." Both Bills and Drummond report that there is no difference in the average potency of Norwegian and of Newfoundland oils.

At present the purchaser has no means of knowing whether a given sample of oil is above or below average potency. But if one is careful to buy only tested oils sold by reputable drug houses one may be sure of a certain minimum potency which, in the doses recommended by most physicians, is sufficient to protect the average baby from rickets.

Vitamins A and D in Cod Liver Oil.—The two fat-soluble vitamins, A and D, although closely associated in cod liver oil, are not parallel. Some oils that are relatively rich in A are poor in D, and others rich in D are poor in A.

The relative concentrations of the two vitamins are not so far apart, however, as the labels on the bottles might sometimes lead one to think. The greatest confusion occurs when both vitamin A and vitamin D potency is expressed in units, and is due to the fact that the vitamin A unit is based on the minimum daily dose, while the vitamin D unit (Steenbock) is based on the total dose. It has been suggested that one or the other unit should be changed so that both are based either on the minimum daily dose or on the minimum total dose.

Cod Liver Oil Concentrates.—Because the fishy odor of cod liver oil is objectionable to some and also because certain delicate children and adults have difficulty in digesting the fat, cod liver oil concentrates are now being offered commercially as substitutes for the oil itself.

There is little in the literature concerning the efficacy of these preparations, and such reports as have appeared are somewhat conflicting. Steenbock, working with calves, and Dr. Amy Daniels, working with rats, have both observed that the cod liver oil concentrates prepared in their own laboratories were most effective when dissolved in oil. Concerning the commercial preparations, one report states that four generations of rats have been reared satisfactorily on a basal diet in which the cod liver oil concentrate furnished the only source of vitamins A and D; another, that the vitamin A content of the product tested was negligible and that it had no greater calcifying properties, gram for gram, than cod liver oil. The method of administering these two preparations is not described.

The value, then, of these concentrates appears to be doubtful. For best results they probably should be dissolved in oil or at least taken in close connection with a meal that is fairly rich in fat. For children, their use is certainly not to be recommended, since much more

effective substitutes are at hand, in the form of irradiated ergosterol or irradiated foods, particularly irradiated milk.

Other Fish Oils.—The liver oils of many fish and marine animals have been tested and found to have marked antirachitic potency, some of them considerably more than cod liver oil itself. Puffer fish liver oil, for example, was found to be fifteen times as potent as average cod liver oil, and certain samples of burbot liver oil proved to be eight times as potent as the sample of cod liver oil with which they were compared.

As everyday foods, the fish body oils are probably more important than the liver oils. Fortunately, these too have been found to be highly active. Tuna fish oil, sardine oil and the oil from Newfoundland herring are equal in potency to cod liver oil. Salmon body oil appears to be from one-third to one-half as potent and Maine herring oil about one-seventh as potent as cod liver oil. Shrimps and oysters, although they have not been compared with cod liver oil, have been found to have appreciable amounts of vitamin D.

Whether or not these newly found sources of vitamin D will affect the cod liver oil industry remains to be seen. It is certain, however, that the average American diet would be greatly improved by the addition of larger quantities of these fish foods.

Egg Yolk.—Rat feeding experiments and clinical work with children both have demonstrated that egg yolk is an excellent source of vitamin D. Hess has protected babies from rickets during the winter months by the addition of egg yolk to the milk formula, and other physicians have even been able to cure severe cases of rickets by feeding one or two egg yolks daily.

Variations in Eggs.—Egg yolk, however, is no more a uniform product than is cod liver oil, and the diet of the hens and the amount of ultraviolet radiation which they receive are both important factors in determining its vitamin D content. For example, in one instance it was possible to increase the antirachitic potency of the egg tenfold by the irradiation of the hens, and in another the addition of a small amount of cod liver oil (2 per cent of the ration) resulted in a fivefold increase in potency.

The suggestion has been made that poultrymen and consumers alike should recognize that the conception that "an egg is an egg" is a mistaken one, and that an inadequate ration may yield impoverished eggs as well as impoverished animals. Eggs could well be graded on their vitamin content (judged by the ration and management of the layers) as well as on their appearance, size, freshness, and so forth, and such eggs might be demanded especially by hospitals and for infant feeding.

Stability of Vitamin D in Egg Yolk.—The vitamin D in egg yolk appears to be remarkably stable. Cooking the eggs, even "hard boiling" them, does not destroy their potency, nor does "cold storage" for six months at 40 F. in an electric refrigerator. Even the Chinese method of preserving ducks' eggs did not seem to destroy the antirachitic value of the yolk.

Cow's Milk and Butter.—Butter fat, although a good source of vitamin A, contains relatively little of the antirachitic factor. In an early investigation carried out by Jones, Steenbock and Nelson the samples of butter examined showed only about one two hundred and fiftieth as much antirachitic potency as the particular samples of cod liver oil tested, although the ratio of vitamin A in the two was 1 to 20.

Other samples of spring and summer butter assayed in England by Coward contained only from 0.8 to 1 unit (British Medical Research Council) of vitamin D per gram, as compared with from 50 to 150 units for cod liver oil. Thus the cod liver oil was between 50 and 185 times as potent as the butter tested.

London milk examined by the same investigator in the late fall contained practically no vitamin D, but in the following summer it had a value of 0.2 unit per gram. The summer milk, therefore, contained approximately 50 units per cup, or 200 units per quart, a small but appreciable quantity.

The seasonal differences in the antirachitic potency of milk and butter which have been observed by numerous investigators apparently are due to variations in the cow's ration and not in the amount of sunshine it receives. In a long series of very careful experiments which have been carried out at the University of Wisconsin it has been impossible to observe any increase in antirachitic potency in milk from cows which have been exposed to sunshine or which have received intense irradiation with artificially produced ultraviolet rays. Potency could be markedly increased, however, by the addition of cod liver oil or irradiated yeast to the cow's ration.

Other investigators have confirmed the results with irradiated yeast and have also obtained similar results with irradiated ergosterol. According to these later reports, it is possible to increase the vitamin D content of butter from fourteen to sixteen times by feeding either irradiated yeast or irradiated ergosterol.

Of the three sources of vitamin D in the cow's ration, the choice seems to be irradiated yeast. Cod liver oil is absorbed to a slight extent only by the cow, whose digestive tract is not adapted to handling such large amounts of fat and, for some reason which cannot be explained at present, better results are obtained with smaller quantities of irradiated yeast than with irradiated ergosterol.

The feeding of a standardized irradiated yeast to milking cows may therefore be considered as a practical measure for the production of a milk of standard antirachitic potency.

Effect of Heat on the Antirachitic Potency of Milk.—Sterilization at 15 pounds pressure for thirty minutes, or evaporation under conditions which approximate those used in commercial practice, results in a slight but appreciable reduction in the antirachitic potency of the milk.

This should not be interpreted as an argument against the use of evaporated or other heat treated milks in infant feeding, but it is an indication that special care must be taken to furnish adequate amounts of vitamin D to children fed in this way.

Vegetables.—Vegetable foods, even the green leafy vegetables so rich in vitamin A, are ordinarily lacking in vitamin D. Certain English investigators have been able to demonstrate a slight antirachitic potency in spinach grown outdoors during the summer months, but to all practical purposes, in the planning of human diets, vegetables must be considered to be lacking in antirachitic potency.

Vegetable Fats.—Vegetable fats, like the vegetables themselves, are not antirachitic. Occasional samples of coconut oil have been observed to have potency, probably because they have been made from sun-dried copra. But the lack of vitamin D in the other commonly used vegetable oils, such as cottonseed, corn, olive and peanut, and, indeed, in most samples of coconut oil, has been

demonstrated many times by many different investigators.

Oleomargarine.—As is well known, oleomargarines are of two kinds: those made from vegetable fats and those made from animal fats, chiefly beef oleo oil. As regards vitamin D content, a sharp distinction must be made between the two products.

The vegetable margarines are notoriously deficient in both of the fat-soluble vitamins, but the animal margarines may contain appreciable amounts of each. Samples of an animal margarine made from oleo oil and neutral lard, and churned in whole milk in such a way that nearly all the solids of the milk went into the margarine, have recently been tested at the Physiological Laboratory of the University of Chicago. This margarine was found to be equal in vitamin A to a good grade of butter and to have a vitamin D content about half way between that of the samples of butter and cod liver oil with which it was compared.

CEREALS AS ANTICALCIFYING SUBSTANCES

Soon after Mellanby's original announcement of the discovery of the dietary cause of rickets, he made a second startling statement to the effect that cereals, especially oatmeal, not only do not contain vitamin D but do contain some definite anticalcifying substance. Continuing his work on dogs, he found that on a diet which was deficient in vitamin D, when other dietary and environmental factors remained the same, doubling the amount of cereal made the rickets distinctly worse. Moreover, the kind of cereal seemed to influence the results, oatmeal being the most harmful, while equal amounts of maize, barley, rice and whole wheat flour were successively less so. Polished rice and white flour were the least harmful of all, but large quantities of wheat germ substituted for the white flour produced a type of rickets almost as severe as the oatmeal cases.

Steenbock, on the contrary, has been unable to confirm these results. He finds little difference in the severity of the rickets produced in rats by different cereals, and such differences as he does find indicate that corn, not oats, is the most seriously rickets producing.

Mellanby, however, has been able to extract a substance from oatmeal which, when added to a diet that would otherwise produce slight rickets, intensifies the symptoms considerably. He also finds that if the oatmeal is boiled with a 1 per cent solution of hydrochloric acid, the neutralized product is found to have lost its power of interfering with the calcification of the bones.

Recently Mirvish, by methods similar to those used by Mellanby, has obtained from oatmeal an extract which will lower the blood calcium of rabbits 30 per cent in from twenty-four to forty-eight hours after intraperitoneal injection, with a return to normal in approximately seventy-two hours. Since the substance obtained from oatmeal is similar in action to bovine ovarian extract, Mirvish has named it "calcovarin." He believes that the rickets producing and blood calcium reducing reactions are both a function of the same extract, and that one must attribute the development of rickets in cases in which the oatmeal extract is fed to an oversupply of calcovarin.

These discoveries should not be allowed to cast any doubt on the value of cereal in human dietaries, particularly those of children. Mellanby himself was the first to show that the anticalcifying effects of cereals or cereal extracts may be completely nullified by supplementing the diet with adequate amounts of vitamin D in the form of cod liver oil, egg yolk or irradiated fats, or by irradiating the animal, or even the cereal itself. One immediately calls to mind the fact that whole races of people, notably the Highland Scotch and many peoples of the Orient, have lived for generations on diets consisting largely of cereals. The Highland Scotch, particularly, have been a sturdy race, noted for their fine physical development. Their diet has, however, been well calculated to overcome the deficiencies of the cereal, since it has contained an abundance of milk and fish. In tropical countries the sunlight undoubtedly performs the same function.

There is therefore no reason to believe that the relatively inexpensive cereal, if properly supplemented with liberal amounts of vitamin D, may not be used in almost any quantities that are practical or that are desired.

IRRADIATED FOODS

Reference has already been made to the almost simultaneous announcements by Hess and by Steenbock of the successful activation of foods by irradiation with ultraviolet rays. Further work by these investigators and others has shown that many foods may be made powerful antirachitic agents by this means.

The foods that have been successfully irradiated include a long list: numerous oils and fats—olive, cottonseed, linseed, corn and coconut oils, lard, oleomargarine and butter; cereal products—refined wheat flour, whole wheat flour, shredded wheat, cream of wheat, oatmeal and even cornstarch; meat; milk, whole or dry; various vegetables, yeast, orange juice, chocolate and ice cream. The potency of egg yolk has been increased from ten to twenty times and that of butter fat from fourteen to twenty times by irradiation. Sugar is almost the only natural food for which attempted irradiation has been unsuccessful. Liquid petrolatum cannot be activated and neither can rancid oils or fats, apparently because the activatable substance is destroyed during the development of rancidity.

Commercial Irradiation of Food: The Steenbock Patent.—Fearing the commercial exploitation of a procedure endowed with such great possibilities for harm, Steenbock, in 1924, patented the process of the irradiation of foods and medicinals by ultraviolet rays. The patent has, however, been assigned to an organization formed for the purpose of receiving it, the Wisconsin Alumni Research Foundation. The foundation sells licenses to manufacturers desiring to use the process, and controls their procedure and even their advertising. Profits from the licenses go to the foundation, not to Steenbock himself. Rights to manufacture under the patent have been sold to the Quaker Oats Company, the Fleischmann Yeast Company, the Dry Milk Company, the Sawyer Biscuit Company and also to other companies in the United States, England and Germany.

Commercial Methods of Irradiation.—The process is usually carried out by exposing the material in a thin layer on a moving belt which passes under a battery of mercury vapor quartz or carbon arc lamps. Solid material may be allowed to fall once or twice to lower belts to secure a partial turning over of the particles, and liquids, instead of passing over a belt below the light, may be allowed to fall in a thin film around or in front of an ultraviolet generator.

Long exposures, of one hour or more, may develop disagreeable tastes and odors in the food and may also

result in an appreciable reduction in the content of other vitamins, especially vitamins A and C. Maximum potency can, however, be developed in very short exposures, with no effect whatever on the flavor or the appearance of the food. Supplee and his associates in the Research Laboratories of the Dry Milk Company report that the length of time required for maximum activation of milk powder depends to some extent on the fat content of the milk but that even skim milk reached its maximum potency in forty-eight seconds. Dry milk samples containing more than 5 per cent of butter fat attained a high degree of potency after irradiation for sixteen seconds.

Short periods of irradiation are equally effective for cereals. In a recent article, Steenbock writes "We have found an exposure of a fraction of a second with a battery of quartz mercury vapor lamps entirely satisfactory."

For butter, longer periods seem to be necessary. Steenbock and Wirick report that the most favorable conditions for the development of antirachitic potency are thirty minutes' exposure at a depth of 0.16 cm. The greater part of the antirachitic potency is developed in the first ten minutes, however.

Fortunately the irradiation of foods need not greatly increase their cost. The Quaker Oats Company is selling irradiated cereals at no advance in retail price, and Dorcas of the National Carbon Company in Cleveland writes that the cost of the irradiation of any food "may be expressed by cents, rather than dollars, per ton of food treated."

Stability of Antirachitic Potency.—Antirachitic potency developed in foods by irradiation appears to be a stable property. Steenbock reports that irradiated cereals held at temperatures as high as 60 C. for sixteen months showed no decrease in potency. After from twenty-three to twenty-eight months there was some reduction, but long before this time even unirradiated cereals kept under the same conditions had developed a strong odor and taste and were entirely unfit for human consumption.

Irradiated dried milk kept for six months in a cupboard under ordinary conditions lost but little of its potency, and even after a year it had deteriorated only moderately. Irradiated butter fat retained most of its potency during storage for seven months in a refrigerator.

Ordinary processes of cooking also do not have any effect on the potency of irradiated cereals, although the vitamin may be destroyed by commercial baking if the temperature is allowed to go too high.

Irradiated Milk.—For the irradiation of milk, perhaps even more than for other foods, especial care must be taken to prevent the development of disagreeable tastes and odors. But if the conditions of the irradiation are properly controlled, a highly satisfactory product may be prepared.

If the irradiation is carried out for but a few seconds, not only is there no change in flavor but the other vitamins of the milk are unaffected. Supplee and Dow report a slight destruction of the antiscorbutic vitamin in milk irradiated in liquid form, but, they write, "Comparatively considered, it is probable that the degree of destruction of vitamin C . . . does not reduce the level of this factor below that frequently found in nonirradiated, natural fluid milk." Dry milk irradiated by ultraviolet rays for periods as long as twenty minutes did not show any evidence of the destruction of vitamin C due to such irradiation.

Irradiated Butter.—Since butter, especially winter butter, is relatively poor in vitamin D, practical methods for increasing its potency are under consideration. Either of two methods might be used; namely, irradiation with ultraviolet rays or the addition of small amounts of irradiated ergosterol.

If butter is irradiated, the question of the effect of the ultraviolet rays on its vitamin A content becomes important. In this connection, Steenbock has found that, under conditions designed to develop maximum antirachitic potency, some vitamin A is destroyed. But since maximum activation probably is not altogether desirable, he believes that any material destruction of vitamin A in the commercial product need not be feared.

Irradiated Cereals, Bread and Vegetables.—A number of irradiated cereals manufactured under the Steenbock patent are now on the market. These cereals, as they are marketed, are not highly potent, certainly not potent enough, in the amounts usually eaten by the average child, to prevent or cure rickets. Their activity is, indeed, standardized to that degree of potency which will allow normal bone production when the irradiated cereal is fed as the sole source of cereal in the Steenbock diet 2965 (76 per cent of the diet) but not when diluted with three parts of undiluted cereal. "This keeps the cereal definitely in the food class and does not make it a medicine."

The value of such weak activation might be questioned by many, but, in the words of Tisdall and Brown, "the chief value of irradiated cereals is that irradiation changes them from rickets-producing foods to rickets-preventing foods. As three teaspoonfuls of cod liver oil each day during the winter months does not furnish any great excess of vitamin D over the amount necessary to prevent rickets in the average infant or young child, any means that can remove the rickets-producing tendency of cereals is of value." Cereal should not be taken in such quantity as to replace important and essential foods.

In the case of bread and vegetables the extent of the irradiation in terms of value in comparison to cod liver oil is indicated on the labels.

The Advisability of the General Use of Irradiated Foods.—The wisdom of the general use of irradiated foods is discussed by Steenbock as follows.

> Essentially, the advisability of the fortification of foods with vitamin D is primarily a problem of: first, what is the extent of the deficiency of the human diet in vitamin D; and, second, to what extent is it absolutely essential that this deficiency be corrected? . . . It must be admitted that there are many circumstances in connection with vitamin D requirements which need to be investigated. For instance, one can well raise the questions: Is there a possibility of hypervitaminosis resulting in the adult through the consumption of such an amount of vitamin D as is necessary for normal bone building in the child? Is the health of the nonlactating person endangered by taking as much vitamin D as is necessary for the nursing mother? May there not be some danger in insuring, by additional vitamin D intake, uninterrupted normal bone building during the entire period of an individual's growth? And it must always be recognized that the optimal vitamin D intake is conditioned by the calcium content of the diet. Excessive calcium intake makes vitamin D more harmful. It is, however, certain that during man's phylogeny under different dietary and climatic environments, with particular reference to exposure of body and food to sunlight, he has exceeded his required vitamin D intake not only by large amounts but over extended periods of time. On this basis, if on no other, it is to be expected that a considerable degree of tolerance should

have been developed. This point of view is supported by our animal experimentation.

As opposed to those who may be skeptical about the value of the general use of irradiated foods on the basis of danger of hypervitaminosis, there may also be those who will believe that little, if anything, is to be gained by the use of these foods because of their low degree of potency. It is difficult to answer this criticism except by calling to their attention the fact that it is preferable to be absolutely safe by avoiding an excessive intake and that any treatment which has as its result the unquestioned improvement of a food, even though this improvement is of a small degree, is one that is not only justifiable but should be instituted in the interest of public health whenever circumstances permit.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

MORNING BRAND MILK
(Unsweetened, Evaporated)

Manufacturer.—Morning Milk Company, Salt Lake City, Utah.

Description.—Canned unsweetened sterilized evaporated milk.

Manufacture.—Essentially the same as described for the usual evaporated milk. (See THE JOURNAL, Jan. 23, 1932, p. 319.)

Analysis (submitted by manufacturer).—

	per cent
Moisture	73.3
Total solids	26.7
Ash	1.5
Fat (Roese Gottleib Method)	7.8
Protein (N × 6.38)	7.4
Lactose (by difference)	10.0

Calories.—1.4 per gram; 40 per ounce.

Claims of Manufacturer.—This brand of evaporated milk is for general cooking, baking and table uses and infant feeding. The mixture of equal parts of the evaporated milk and water is not below the legal standard for whole milk. The curds formed in the stomach are smaller, softer and more readily digestible than those from raw or pasteurized milk.

BARKER'S 100% WHOLE WHEAT BREAD

Manufacturer.—Barker Baking Company, Grand Forks, N. D.

Description.—A whole wheat bread, made by the straight dough method (method described in THE JOURNAL, March 13, 1932, p. 889), prepared from whole wheat flour, water, salt, shortening, sucrose and yeast.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	37.5
Ash	2.0
Fat	2.2
Protein (N × 6.25)	9.7
Crude fiber	1.3
Carbohydrates other than crude fiber (by difference)	47.3

Calories.—2.5 per gram; 71 per ounce.

Claims of Manufacturer.—A bread of good quality.

UNION BRAND GOLDEN TABLE SYRUP
(Corn Syrup and Refiners' Syrup)

Distributor.—Union Sales Corporation, Columbus, Ind.

Description.—A table syrup; corn syrup flavored with refiners' syrup.

Manufacture, Analysis, Calories, Claims of Manufacturer.—See these sections for Pennant Golden Table Syrup (THE JOURNAL, Jan. 30, 1932, p. 402).

SWANDER'S LONG BOY BREAD

Manufacturer.—Swander Baking Company, General Office, Rapid City, S. D.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932, p. 817); prepared from patent flour, water, powdered skim milk, a partially hydrolyzed starch, shortening, salt, yeast, sucrose, malt extract and yeast foods containing, respectively, calcium sulphate, ammonium chloride, sodium chloride and potassium bromate and a mixture of calcium acid phosphate and calcium peroxide.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	31.9
Ash	1.1
Fat	1.5
Protein (N × 6.25)	9.4
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	55.8

Calories.—2.7 per gram; 77 per ounce.

Claims of Manufacturer.—A bread of good quality.

KRE-MEL DESSERT (VANILLIN FLAVOR)
A mixture of sugar (dextrose and sucrose), corn starch, vanillin flavor, with U. S. Certified Food Color added.

Manufacturer.—Corn Products Refining Company, New York.

Description.—Mixture of dextrose, corn starch, sucrose; flavored with vanillin and colored with U. S. Department of Agriculture certified color; packed in wax-paper cartons.

Analysis (submitted by manufacturer).—

	per cent
Moisture	7.0
Ash	0.9
Fat (ether extract)	0.1
Protein (N × 6.25)	0.1
*Dextrose	45.0
*Sucrose	24.0
*Starch	24.5
Crude fiber	0.0
Titratable acidity as HCl	0.02
Vanillin flavor	present

* Estimated from formula.

Calories.—3.7 per gram; 105 per ounce.

Claims of Manufacturer.—A dessert powder for the simple preparation of table desserts.

SUMMER GIRL BRAND GOLDEN SYRUP
(85 Per Cent Corn Syrup, 15 Per Cent Refiners' Syrup)

Packer.—D. B. Scully Syrup Company, Chicago.

Distributor.—H. D. Lee Mercantile Company, Kansas City, Mo.

Description.—A table syrup; a corn syrup flavored with refiners' syrup.

Manufacture, Analysis, Calories, Claims of Manufacturer.—See these sections for Banner Blue Corn Syrup with Cane Flavor (THE JOURNAL, March 5, 1932, p. 817).

"220" BREAD AND KEW-BEE REDI-SLICED BREAD

Manufacturer.—Kelley-MacGregor Baking Company, St. Petersburg, Fla.

Description.—A white bread made by the sponge dough method (method described in THE JOURNAL, March 5, 1932), prepared from patent flour, water, yeast, salt, a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, sucrose, lard, and sweetened condensed skim milk.

Analysis (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	34.3
Ash	0.7
Fat (ether extraction method)	1.1
Protein (N × 6.25)	8.3
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	55.2

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—A bread of good quality.

DANISH PRIDE EVAPORATED MILK

Manufacturer.—Pet Milk Corporation, St. Louis.

Description.—This is the same product as Pet Unsweetened Evaporated Milk (THE JOURNAL, Nov. 15, 1930).

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SATURDAY, JULY 23, 1932

THE TECHNIC OF MEASURING BLOOD PRESSURE

The progress of medical diagnosis has been characterized by the introduction of new and more accurate methods of studying bodily functions. Some of these procedures represent applications of chemical reactions, notably in recent years; others are exemplifications of physical measurements. In many instances the innovations have tended to replace subjective impressions of the examiner by objective data. This is conspicuously true, for instance, in the use of the watch for estimating the heart rate and of the clinical thermometer to register body temperature. Information regarding blood pressure, long secured through the *tactus eruditus* of the physician, has been supplemented in modern times by other, likewise indirect, methods of sphygmomanometry. They have become familiar in principle, consisting, as they do, of an estimation of the pressure on a superficial artery required to obliterate the flow of blood in it.

In the physiologic laboratory it has long been customary to employ more direct methods; that is, to connect the interior of an artery with the manometric apparatus, thereby avoiding any error possibly associated with the arterial walls. There are many records of comparison, on animals, between the direct and indirect procedures for estimating the arterial tension. Most of them suggest that the errors involved in the indirect procedures such as clinicians commonly employ on man today are not significant—probably not greater than 10 mm. of mercury in the presence of normal arteries. In the case of sclerosed and therefore less elastic arteries, it has been admitted that sphygmomanometric readings may be misleading. According to one group of investigators:[1] "the commonly accepted criteria for obtaining systolic and diastolic blood pressures do not yield correct results but give readings which are too high. . . . In soft arteries, the error is not large, but in arteries made resistant by disease or by contraction of their muscular elements, it must be very great."

In a recent study on man at the Tufts College Medical School in Boston by Dameshek and Loman,[2] the intra-arterial (brachial) pressure in about 150 individuals was determined by a direct method, which was compared with the usual indirect methods. The direct procedure in these cases involved puncture of the artery with a needle attached to a manometer. The results showed the indirect method of sphygmomanometry to be accurate even in the presence of marked arteriosclerosis. The error introduced cannot at most be more than 10 or 20 mm. of mercury, which is not sufficiently great for practical purposes. According to Dameshek and Loman, the apparent discrepancy between direct and indirect readings in arteriosclerosis is due not to the hardness of the vessel wall and consequent resistance to compression by manometer "cuffs" but rather to the degree of high pulse pressure. In direct intra-arterial measurements it was discovered that the greater the pulse pressure the less accurate was the technic used—in other words, a mean rather than a systolic pressure was determined. Incidentally, it was found that the intrabrachial pressure is in almost all instances definitely higher than the intrafemoral or intracarotid pressures. The femoral arterial pressure is probably somewhat lower than the brachial because of its greater distance from the heart and the consequent slight loss in the head of pressure. The studies included the use of manometers of both the calibrated aneroid and the mercury type.

1. Brooks, C., and Luckhardt, A. B.: Am. J. Physiol. **40:** 49 (June) 1932.

2. Dameshek, William, and Loman, Julius: Direct Intro-Arterial Blood-Pressure Readings in Man, Am. J. Physiol. **101:** 140 (June) 1932.

MOUTH WASHES AND GARGLES

The Council on Dental Therapeutics of the American Dental Association, founded and organized after the manner of the Council on Pharmacy and Chemistry of the American Medical Association, has begun to secure order in the complex and difficult field in which it works. Among the most recent of its publications is a consideration of the subject of mouth washes.[1] Physicians have long since begun to realize that a mouth wash is simply a pleasantly flavored fluid with which to rinse the mouth. There are, of course, highly antiseptic solutions which may be swished around in the mouth for considerable periods of time and, no doubt, by such swishing for a sufficiently long time one may reduce the bacterial count. However, the mouth is easily accessible to an influx of new germs, and the moment the antiseptic is removed such germs as remain continue to multiply and to reproduce. There are, no doubt, hemorrhagic conditions with a tendency to softness and bleeding of the gums and mucous membranes of the mouth in which astringent solutions may be of value for a limited time, when administered under

1. Mouth Washes: Report of the Council on Dental Therapeutics, J. Am. Dent. A. **19:** 1239 (July) 1932.

competent advice. For the vast majority of normal people, however, a mouth wash is simply a pleasant tasting fluid for rinsing the mouth. Normal persons do not require antiseptics or astringents for routine application to the oral cavity. Notwithstanding these facts, manufacturers of mouth washes of various types, including acids and alkalis, astringents and non-astringents, of greater or lesser antiseptic value have, by astute advertising campaigns, led great multitudes of people to the routine use of such rinsing solutions and have proved by the quotations of their stocks on the market that "there's milyuns in it."

The Council on Dental Therapeutics of the American Dental Association says that "the average mouth wash on the market may be stated to be devoid of immediate harm when used merely as a mouth wash." It is recognized that many of the chemical compounds incorporated into mouth washes have a high germicidal value on the basis of the pure chemical and, at the same time, that the dilution to which they are subjected may completely invalidate such germicidal value as the pure compound possesses. Therefore, germicidal tests must be made with the dilution recommended by the manufacturer and on a concentration found in the mouth during use. Although the phenol coefficient method is useful as a relative measure of the potency of various germicides and antiseptics, it is essentially a laboratory test tube method. "No method or combination of methods has been devised," says the dentists' council, "which will give a thoroughly satisfactory comparison of germicidal agents in a test tube and under the conditions in which they are actually used." Tests carried out in the mouth are even more difficult than those concerning areas of the skin. There is no way to estimate even roughly the number of bacteria in the mouth at any given time, or the number remaining after the mouth wash has been used, or the rapidity with which the germs again develop after the mouth wash is used. The presence of remnants of food, the condition of the gums, and many other factors which interfere with the extent to which the mouth wash may reach the germs or remain in contact with them are other factors complicating the situation.

Physicians have known for years that a gargle seldom gets beyond the anterior pillars of the tonsils and certainly does not get at the germs that are in the crypts of the tonsils. The Council on Dental Therapeutics feels that the usual run of mouth washes are not medicines in any sense of the word and really serve no more intrinsic purpose than as an aid in the mouth toilet in the removal of loose food and débris. Furthermore, it has not been shown that the mouth of the average normal person needs a medicated mouth wash.

While the Council on Dental Therapeutics does not specifically attack the claims made for any widely advertised mouth wash, it does point out that the claim that a mouth wash removes mucin films is too remote to warrant serious consideration, which is, of course, a direct thrust at the claims made for such products as Mu-Sol-Dent. It continues with the assertion that the same statement applies to neutralization of mouth acidity; and to halitosis, which is a specific indictment of the advertised claims for such preparations as Listerine and Pepsodent. Before investing considerable sums of money in any of these toilet articles, therefore, the medical profession, the dental profession and the public will do well to realize the limitations of the products so far as concerns their value for the prevention and treatment of disease.

THE INTRACUTANEOUS TUBERCULIN TEST

Koch's use of tuberculin in 1890 was greeted with keen interest on account of its promise in two directions: an effective treatment of tuberculous disease and a new diagnostic method. Neither of these hopes has been fully realized. Since 1890, various tests have been employed for detecting tuberculosis, having as their common basis the allergic response of individuals infected with the tubercle bacillus to the products of its growth. The cutaneous (Pirquet) and the intracutaneous (Mantoux) are the only methods of tuberculin testing widely used. The results of numerous comparative studies seem to indicate that the intracutaneous (Mantoux) test used in doses of 0.1 cc. of 1:1,000 dilution (= 1 mg.) is at least as sensitive as and in larger doses more sensitive than the cutaneous or Pirquet scratch test when the maximum concentration (undiluted) of tuberculin is used for the latter method. The intracutaneous test is thus a thousand or more times as sensitive if concentration is compared with concentration. The objection that it is too delicate cannot be upheld because the sensitiveness of the method may be reduced at will by dilution until equal to or less than the Pirquet test. The greater sensitiveness of the intracutaneous method gives it a reserve of strength not possessed by the Pirquet test. Since undiluted tuberculin is generally used in the first instance for the Pirquet test, repetition with the same solution is the only means of procedure in case of doubt. In the intracutaneous method it is possible to use ten, a hundred, and if necessary a thousand times the usual initial dose when retesting patients.

The two tests differ in other respects besides sensitiveness. In the Pirquet reaction the volume entering the skin is variable and cannot be measured, so that the quantitative use is limited. Even if two tests are made simultaneously, a response may be obtained in one and not in the other. In contrast to the Pirquet test, however applied, the intracutaneous method affords an accurate means of administering a known quantity of tuberculin at a known depth of the skin. It therefore can be used quantitatively in graded doses and the results compared with considerable accuracy. The

intracutaneous test is thus more sensitive and more free from technical error than the Pirquet test and the dose can be more accurately regulated.

Qualitative skin tuberculin tests are usually made with the same concentration of tuberculin in each case, and the result of the test is either reported merely as positive or negative or is roughly classed according to the intensity and sometimes the character of the reaction. It seems that a positive reaction to a qualitative test establishes that infection has taken place. Except in early life, further information about the prognosis and diagnosis is likely to be better obtained by using a quantitative procedure. Quantitative skin tuberculin tests are made (*a*) with tuberculin of fixed concentration, the results of the test being classified according to the intensity of the reaction, or (*b*) with a series of graded dilutions, the test being reported as positive or negative to a particular dilution, and these two methods are frequently combined.

The technic of the intracutaneous test is fully described by Hart [1] in a recent publication:

> Human old tuberculin of known potency according to the international standard should be used. Dilutions of 1:10,000, 1:1,000, 1:100 and 1:10 are prepared. They should not be used more than a fortnight after dilution. The diluent recommended is a 0.5 per cent phenol-saline solution. The front of the forearm or upper arm is cleansed with alcohol or ether before making the test and an injection of 0.1 cc. of the dilution is made with the bevel of the needle upward. In making the injection the skin should be held taut with the left hand, the needle being inserted at the smallest angle possible until the bevel is just completely covered. In this way subcutaneous injection is avoided. The injection must raise a bleb, on the surface of which the hair follicles should be clearly visible. Control solutions are unnecessary as a routine when solutions of 1:100 or weaker dilutions are used but are advisable with 1:10 or more concentrated tuberculin in order to prevent confusion with delayed atypical nonspecific reactions, which follow these large doses with comparative frequency. The controls should consist of glycerinated veal peptone broth of the same strength and composition as that contained in the tuberculin and preferably obtained from the actual medium from which the particular sample of old tuberculin was obtained. Readings should be made at forty-eight and ninety-six hours or, if only one observation is possible, at seventy-two hours. The test should be recorded as positive or negative to the given dilution. A reaction should be regarded as positive if it consists of an area of erythema or erythematous infiltration the greatest diameter of which equals or exceeds 5 mm. If a control test is made, an area definitely greater than that on the control arm constitutes a positive reaction. Feeble positive reactions are liable to cause difficulty. Doubt may generally be removed by retesting with ten times the strength of tuberculin. This procedure should be carried out within a week of the previous test or else after an interval of several months, on account of the possibility of sensitization causing a reaction. The initial injection should be 0.1 cc. of 1:10,000 tuberculin. When, however, experience and confidence in the test have been gained, the initial dose may be 0.1 cc. of 1:1,000 tuberculin except in patients (*a*) suspected of having bone, joint, ophthalmic or skin tuberculosis (*b*) who have had a recent hemoptysis or (*c*) who are home contacts of tuberculosis, and (*d*) in patients when attendance at further tests cannot be guaranteed. The weaker solution is less likely to produce discomfort or severe reactions than is 1:1,000 when given as the initial injection. The latter solution, however, gives a clearer reading and saves time. The initial concentration must never be greater than 1:1,000. All patients negative to a 1:10,000 dilution should be retested with a 1:1,000 dilution. A dose of 0.1 cc. of 1:1,000 solution of tuberculin is in general sufficient for routine purposes. To make more certain, however, patients negative to this dose should where possible be retested with 0.1 cc. of 1:100 tuberculin. This procedure should be carried out if there is the slightest doubt as to the diagnosis from the clinical standpoint or if reduced reactivity is suspected. In such cases, if the patient is still negative, he should be further tested with 1:10 dilution. The latter is the practical upper limit because stronger solutions are difficult to inject, cause pain, rarely yield additional positives, and give atypical nonspecific reactions with comparative frequency. Retests are conveniently made at the time of reading the previous reactions.

1. Hart, P. D.: Med. Res. Council, Spec. Report Series, no. 164, 1932, p. 136.

Although it is some forty years since this method was first introduced, a vast experience has been necessary to permit the development of anything approaching a standard technic and a standard interpretation such as are suggested by Hart. The accumulation of additional records of cases studied by this method will therefore determine whether such a procedure yields results sufficient for practical purposes or whether further research is required for still more certain methods in diagnosis.

Current Comment

TRICHINIASIS FROM "JERKED" BEAR MEAT

Parasitic infestation in man is becoming less and less common in this country. Even in the South, yellow fever, malaria and hookworm disease are succumbing to the efforts at eradication. Entomologists, mycologists, public health workers and physicians have had a part in this continued campaign of "cleaning out." The recent report of Walker [1] is interesting not only because of the increasing rarity of trichiniasis but also on account of the circumstances surrounding the cases. A brown bear was shot by a party of hunters, who preserved the meat by "jerking," a process consisting of smoking thin strips and then drying in the sun. A considerable amount of this "jerky" was eaten by a boy, a member of the hunting party, and a little by four other members of his family. Within ten days to two weeks all became ill with typhoid-like symptoms but in varying degrees dependent, partly, on the amount of "jerky" consumed. All the patients experienced chills and fever early in the course, and high white cell count, with polymorphonuclears emphasized at the height of the disease and eosinophilia during convalescence. In all but one of the patients there were severe muscular pains and greater or less inability to move the extremities. Microscopic examination of the "jerky" showed that the bear muscle was "loaded with Trichinella spiralis in the encysted stage." At necropsy of the boy the unencysted larvae of Trichina were found throughout the diaphragm and pectoral muscles. The life history of this dangerous parasite is well known; two hosts are necessary for the complete cycle. Poorly cooked pork has, in the past, been the commonest source of trichiniasis in man. This account of

1. Walker, A. T.: Trichiniasis, J. A. M. A. **98**: 2051 (June 11) 1932.

infected bear meat not only is of scientific interest but serves as a warning to the increasing number of amateurs who spend their vacations roughing it in a romantic but often unhygienic manner.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts on Monday and Wednesday from 10:45 to 10:50 a. m. over Station WBBM (770 kilocycles, or 389.4 meters). The Columbia chain program has been discontinued for the present.

The subjects for the week are as follows:

July 25. Harmful Effects of Bran.
July 27. Diabetes.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 10:45 to 11 over Station WBBM.

The subject for the week is as follows:

July 30. Gastritis.

This schedule is based on Chicago Daylight Saving Time, one hour faster than Central Standard Time.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Food Poisoning.—Eight cases of food poisoning were reported in Plumas County during May, the bulletin of the state department of health noted recently. These cases occurred in a lumber camp and probably had their source in meat which had been allowed to stand on a warm stove and which was served without reheating. Eight cases of gastro-enteritis were reported from Madera County, and of this group four cases of typhoid developed later, the bulletin states. The investigation of this outbreak had not been completed, July 2, and the source had not then been determined definitely.

News of Some Eyesight Swindlers.—Newspaper reports of the activities of eyesight swindlers throughout the state were recently printed by *California and Western Medicine*. Edward Cavenaugh, in jail in Los Angeles, it was stated, was identified by a woman in Antelope Valley as the man who swindled her out of $1,000 through the "eye treatment racket." Pretending to discover an "ailment" in one of her eyes, he recommended a "Dr. Miles," who administered "radium" which subsequently turned out to be "drops of clear water." "Dr. Miles" produced a small particle of substance which he told the patient had been removed by application of "radium." The same group is said to have swindled an Elk Grove rancher out of $3,500 through similar "treatment."——Matthew O. Wilkinson, alleged eyesight swinder, was recently returned by authorities from Texas. He is said to have posed in 1930, as a business man, interceding in behalf of eyesight swindlers Frank Faircloth and John F. Gebhart. On his failure to appear in court at Chula Vista, April 19, cash bail of $200 deposited by his attorney was said to have been declared forfeited, whereupon a bench warrant was issued and his bond applied in payment of a $200 fine. He is claimed to be the brother of Elliott Wilkinson, eyesight swindler, now said to be serving a term in prison at Stillwater, Minn.

COLORADO

Society News.—Dr. Edward L. Harvey, Denver, addressed the Larimer County Medical Society at Fort Collins, June 1, on "Lower Cervical Cesarean Section."——The Weld County Medical Society was addressed, June 6, by Dr. George M. Blickensderfer, Denver, on "Acquired Heart Disease in Children."

DISTRICT OF COLUMBIA

Personal.—Surg. Rolla E. Dyer, U. S. Public Health Service, Washington, received the degree of doctor of laws from Kenyon College, Gambier, Ohio, June 20, in recognition of his recent work on endemic typhus fever. Dr. Dyer received his academic education at Kenyon College.

New Medical Laboratory.—The new laboratory building for teaching and research was recently completed at George Washington University Medical School. This building makes possible the reorganization of the fundamental scientific departments. With the remodeling of the old medical building, which will include segregating the departments of anatomy, pathology, physiology and pharmacology on separate floors during the summer, the school of medicine will possess facilities for advancing its program in medical education and investigative work. The new $75,000 structure will also house a central laboratory to serve the University Hospital and the clinical departments. Adjoining this is a fully equipped laboratory for the teaching of clinical microscopy, all under the supervision of a full time director who will develop this work in the department of medicine. The new building also provides a teaching laboratory for the department of bacteriology, hygiene and preventive medicine and offices and individual laboratories for the members of the department. The fourth floor communicates with the old medical school building, where will be located the department of pathology. The third floor of the new building will communicate with the department of biochemistry, while the second floor is connected with the medical library, now under the supervision of a trained librarian. Construction on a new addition to the University Hospital building began in May.

ILLINOIS

Licenses Revoked.—The state department of registration and education revoked the license of Dr. James L. Hawkins, Chicago, June 22, on his conviction of fraudulent misrepresentation in connection with the "American Society for the Conservation of Vision." The board revoked the license of Dr. Charles C. Keester, Wichita, Kan., July 7, on his conviction of first degree manslaughter (THE JOURNAL, April 16, p. 1386).

State Academy of Science.—Mr. Harry F. Ferguson, state department of public health, Springfield, was elected president of the Illinois State Academy of Science at its twenty-fifth annual meeting, at the University of Chicago recently. Harold R. Wanless, University of Illinois, is the secretary. Speakers included Fay-Cooper Cole, Ph.D., University of Chicago, on "The Coming of Man." One of the sectional meetings was devoted to a symposium on recent changes in food habits and their causes. A resolution was adopted protesting against the contemplated action of Congress in reducing so severely the appropriations for scientific research.

Chicago

Health Program on Navy Pier.—Physician members of the Chicago Woman's Club have been organized into the Navy Pier Committee to conduct a health program each Tuesday afternoon at 2:30, during July and August, on the Navy Pier, for the education of people who make the pier a recreation spot. The health lecture, which is given by a woman physician, is followed by a question box and preceded by a short program of music or other appropriate entertainment. Dr. Sara C. Buckley lectured on "Nature's Milestones," July 5; Dr. Alice I. Conklin, July 12, on "High Blood Pressure," and Dr. Julia C. Strawn, July 19, on "Safe Surgery." Future programs will be: August 2, "The Expectant Mother" by Dr. Effa V. Davis; August 9, "Mental Habits in Child Development," Dr. Josephine Young; August 16, "Feet," Dr. Anna E. Blount; August 23, "Adolescence," Dr. Lena K. Sadler, and August 30, "Treatment of the Common Cold," Dr. Alice K. Hall.

"Examination of School Children Abandoned."—Relative to the item with this title, which appeared in THE JOURNAL, July 9, Dr. Herman N. Bundesen, president of the Board of Health of the City of Chicago, writes:

"During the last fifteen years, 1,690,791 school children have been examined; 3,511,124 physical defects have been found, and 1,012,129 corrections of defects have been obtained.

"School children have been given physical examinations by this department since 1908. In 1916, the Municipal Tuberculosis Sanitarium assigned to the Board of Health for this purpose fifty physicians. In 1930, the services of twenty-five of these physicians were discontinued due to a curtailment in the budget of the Sanitarium.

"To control contagious disease, one hundred and twenty school health officers and field health officers are employed. During 1930, the remaining twenty-five Muncipal Tuberculosis

Sanitarium physicians, with some additional help given by the school health officers, examined 139,125 children.

"Recently, possibly since the issue of the July 9th JOURNAL, the City Council reconsidered the discontinuing of the twenty-five physicians and twenty-five nurses, formerly employed by the Muncipal Tuberculosis Sanitarium, and appropriated for them in the budget of the Board of Health."

INDIANA

Distribution of Physicians.—To make available information concerning the distribution of physicians, a survey in Indiana was recently made. The report in the *Journal of the Indiana State Medical Association* shows the population per physician in practice in Indiana; average age of physicians in actual practice; distribution of urban and rural population; change in population since the last census; roads of all types; distribution of general hospitals; special hospitals; state hospitals, sanatoriums for treatment of tuberculosis, and membership in local medical association; distance to nearest physician, and other items of interest. This study indicates that the younger physicians are going to cities rather than to rural districts; few communities in Indiana now need physicians; at the present rate of change, many counties in southern Indiana will in a few years be very much in need of physicians; modern industrial centers are producing few physicians, but are attracting many; rural and small town districts are producing many physicians but cannot hold them after they have graduated.

IOWA

Personal.—Dr. James D. Lowry, Fort Dodge, has been elected president of the state board of health.——Dr. Arthur Shannon Fourt, medical examiner in the student clinic at the university hospital, has been appointed medical supervisor, division of physical education, State University of Iowa, Iowa City, succeeding Dr. Leonard P. Ristine. The latter resigned to become superintendent of the state hospital for the insane at Cherokee.

Society News.—Dr. August R. Anneberg, Carroll, was elected president of the Twin Lakes District Medical Society at a meeting in connection with the annual clinics and picnic at Twin Lakes near Rockwell City, June 16. Three physicians in Carroll County were eligible for this honor, which goes to the oldest practicing physicians in the county, it was reported. The question was decided by drawing from the names of Drs. Anneberg and Henry R. Pascoe, Carroll, and Channing E. Wolfe, Coon Rapids. Dr. Paul W. Van Metre, Rockwell City, was reelected secretary.——The Austin Flint Cedar Valley Medical Society met in Waterloo, July 12. Dr. Maurice L. Blatt, Chicago, conducted a pediatric clinic and gave an address on "Neuromuscular Diseases of Children." Dr. Benjamin F. Wolverton, Cedar Rapids, conducted a heart clinic, and Dr. Frank R. Peterson, Iowa City, a surgical clinic. Addresses were presented by Drs. Walter L. Bierring, Des Moines; Leslie L. Carr, Clermont; Frank W. Porterfield, Waterloo, and Waltman Walters and Louis B. Wilson, Rochester, Minn.

MAINE

State Medical Meeting.—Dr. Elmer D. Merrill, Dover-Foxcroft, was installed as president of the Maine Medical Association, June 17, at the annual meeting in Rangeley. Dr. Warren E. Kershner, Bath, was made president-elect, and Dr. Philip Webb Davis, Portland, reelected secretary. The next annual session of the society will be held at Poland Springs, the date to be determined later. Speakers on the scientific program included Drs. De Forest C. Jarvis, Barre, Vt., on "The Respiratory Tract as a Guide to Acid or Alkaline Therapy"; Elliott C. Cutler, Cleveland, "Cardiac Surgery"; John A. Kolmer, Philadelphia, "Principles of Vaccine and Non-specific Protein Therapy," and Judge W. R. Pattangall, chief justice, supreme court of Maine. Dr. Richard S. Buker, Kengtung, Burma, India, spoke at the annual banquet on "Five and One-Half Years' Medical Work in Kengtung, Burma." A scientific exhibit was a departure of the annual meeting this year. Conferences formed a large part of the program.

MARYLAND

Larger Appropriation for Charity Patients.—Johns Hopkins Hospital, through its board of trustees, has asked the supervisors of city charities, Baltimore, for a $50,000 increase in its annual appropriation. Since 1929 the hospital has received $20,000 a year from the city to help pay the cost of medical and surgical treatment it provides for charity patients. In the letter from the board of trustees, it is shown, the report stated, that for the year ended June 30, 1931, Johns Hopkins had spent $565,000 on the care of free patients, and that its estimated deficit as of June 30 last was $70,000. A deficit of $120,000 can be expected on the basis of present indications, according to the report.

Physicians Offer to Examine Children.—Physicians in Worcester County, following conferences with the county medical society, have offered to examine children whose parents are unable to pay for medical service at a definite time either in the office or at some designated place. Dr. Bradford Massey, Pocomoke City, the county health officer, is chairman of a special committee appointed by the society to arrange a schedule for these examinations. In most of the counties through the state, periodic health conferences were the first steps taken to provide some recognized means by which the infants and young children of parents unable to pay for medical service can have adequate medical supervision. Children examined in these conferences are referred to their own physicians for necessary advice and treatment. It is expected that if the Worcester County plan succeeds, it will have a far reaching influence on other counties in the state.

MASSACHUSETTS

Round Robin Among Classmates.—Five physicians recently marked the thirty-second anniversary of a college friendship with a dinner at the Worcester Country Club. These physicians have conducted a biweekly round robin correspondence since their graduation. The physicians are Drs. Albert E. Cross, Worcester; Edwin P. Ruggles, Boston; Edward W. Burt, Westport; George H. Rand, Livermore Falls, Maine, and Seth Ames Lewis, Springfield.

Dr. Mark Honored.—In recognition of the eighty-fifth birthday of Edward Laurens Mark, LL.D., Hersey professor of anatomy, emeritus, Harvard University, a dinner was given in his honor by colleagues, friends and former students. The following speakers were introduced by Herbert W. Rand, Ph.D., of Harvard University: Charles B. Davenport, Ph.D., of the Carnegie Institution; Ephraim Emerton, Ph.D., Edwin H. Hall, LL.D., and Frank W. Taussig, LL.D., Harvard University; Dr. Fred B. Lund, Boston; Dr. Frederic T. Lewis, Harvard University Medical School; Herbert V. Neal, Ph.D., Tufts College; Robert P. Bigelow, Ph.D., of the Massachusetts Institute of Technology, and Prof. John F. Fulton, Jr., of Yale University School of Medicine. Dr. Mark also spoke.

MINNESOTA

Personal.—Dr. Halbert L. Dunn, formerly medical statistician at the Mayo Clinic, Rochester, has been appointed superintendent of the University of Minnesota Hospitals, Minneapolis. He succeeded Mr. Paul H. Fesler, who resigned to become superintendent of Wesley Memorial Hospital, Chicago.——Dr. Herbert E. Chamberlain has resigned as director of the Minneapolis Child Guidance Clinic at Lymanhurst Hospital-School, Minneapolis, effective September 1. He has accepted the position of associate professor of psychiatry at the University of Chicago.

Fined for Lack of Basic Science Certificate.—Herman C. Frerichs, who claims to be a naturopath, was sentenced, June 2, to pay a fine of $100 or serve thirty days in the workhouse for practicing healing without a basic science certificate. He paid the fine. Frerichs maintained an office in St. Paul for the purpose of practicing naturopathy. He claims to be a graduate of Heidelberg but is unable to produce any credentials, the state board reports. Following his arrest, April 12, Frerichs removed the signs from the front of his home and was instructed by the judge to remove his listings from the telephone and city directories. He claims that he has been engaged in the healing art for twenty-one years. His activities were first called to the attention of the board early in 1930 and, following an investigation, Frerichs agreed in writing to refrain from practicing healing in the future. His failure to comply led to his arrest.

MISSISSIPPI

Pike County Lectures.—Following a plan to have at least eight lectures and clinical days during 1932, the Pike County Medical Society and physicians in adjoining counties have been attending the following program offered by guest speakers:

Dr. Charles J. Bloom, professor of pediatrics, Tulane University Graduate School of Medicine, "Uses of Calcium in the Treatment of Certain Respiratory Diseases."

Dr. James G. Carr, professor of medicine, Northwestern University Medical School, Chicago, "Jaundice."

Dr. Edward W. A. Ochsner, professor of surgery, Tulane University School of Medicine, "Complications of Appendicitis."

At a recent meeting of the Pike County Medical Society, Dr. Taswell Paul Haney, Jr., was elected secretary.

NEW JERSEY

Health at Trenton.—Telegraphic reports to the U. S. Department of Commerce for eighty-five cities with a population of 37 million for the week ended July 2 indicate that the highest mortality rate (18.9) appears for Trenton and the rate for the group of cities as a whole, 10.1. The mortality rate for the corresponding period last year for Trenton was 11.4 and for the group of cities, 12.5. The annual rate for eighty-five cities for the twenty-six weeks of 1932 is 12 as against a rate of 12.9 for the corresponding periods of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

NEW YORK

Personal.—The honorary degree of doctor of laws was conferred on Dr. Grant C. Madill, Ogdensburg, by New York University, June 8. Dr. Madill was president of the Medical Society of the State of New York in 1919.——Dr. Mary J. Kazmierczak, Buffalo, was elected president of the Women's Medical Society of New York at its annual meeting in Buffalo, May 23.——Dr. George Fletcher Chandler was recently appointed police commissioner of Kingston.——The honorary doctorate of science was conferred on Strashimer Alburtus Petroff, director of the Trudeau (N. Y.) Sanatorium laboratory, at the annual commencement of Colgate University, Hamilton.

Public Health Centennial.—The one hundredth anniversary of the establishment of public health service in Syracuse was signalized by a special program held during the meeting of the American Association for the Advancement of Science during the week of June 20. Dr. Thomas Parran, Jr., state health officer, and Dr. Wilson C. Smillie, Boston, among others, spoke on the advancement of pubic health during the century and on the common cold, respectively. A local newspaper issued a special edition describing the advances in medicine during the past hundred years. Syracuse was the first city in its population group to receive the award of the United States Chamber of Commerce in the health conservation contest.

Sale of Raw Milk Regulated.—The board of health of Waterville, Oneida County, recently adopted a resolution requiring that ". . . no person shall sell, offer for sale, serve or distribute in the village of Waterville, New York, any 'Grade A Raw' milk or 'Raw' cream which has been produced from any animal which is not free from Brucella abortus infection as indicated by the standard agglutination test of such animal's blood made at intervals of not more than two months, unless after two successive clean tests a longer interval may be approved in writing by the health officer." Another resolution was adopted prescribing a civil penalty for violation of or failure to comply with orders or regulations of the board of health or provisions of the state sanitary code.

New York City

Society News.—Dr. William Klein was elected president of the Bronx County Medical Society, June 15, and Dr. Isidore J. Landsman, secretary.——Dr. George A. Auden, Birmingham, England, addressed the Medical Society of the County of Queens, recently, on "Organization of a School Medical Service in a Large City."

Quacks Barred from the Streets.—Quacks and charlatans who hawk medical nostrums and misinformation concerning diseases are barred from the streets of New York by an addition to the sanitary code recently adopted by the board of health, effective July 1. It is said that complaints have been received that gullible persons have been made ill by the fakers' concoctions.

After-Care of Poliomyelitis Patients.—According to the New York *Times*, the clearing house for poliomyelitis cases, organized by the commissioner of health to follow all cases of infantile paralysis of the 1931 epidemic, reported that after-care had been given to 3,252 children. Of these, 1,912 cases still showed residual paralysis this summer, and complete recovery had occurred in 1,340 cases.

Personal.—Dr. Henry James Spencer has been appointed director of the Second (Cornell) Medical Division of Bellevue Hospital, and assistant professor of clinical medicine in the Cornell University Medical College. He succeeds Dr. Eugene F. Du Bois in the former position.——Dr. Oscar M. Schloss, professor of pediatrics, Cornell University Medical College, has been appointed pediatrician-in-chief of the New York Hospital. He will head the Children's Hospital at the new medical center, giving full time to this work and research and teaching.

NORTH CAROLINA

Personal.—Dr. Thurman D. Kitchin, president and dean of the department of medicine, Wake Forest College, Wake Forest, received the honorary degree of doctor of laws at the recent commencement at Duke University.——Dr. James Bell Bullitt, Chapel Hill, was elected president of the North Carolina Academy of Science at its recent annual meeting.

State Board Reorganized.—New members of the state board of medical examiners appointed by the state medical society at its recent annual meeting are Drs. Kirby G. Averitt, Fayetteville; James W. Vernon, Morganton; William H. Smith, Goldsboro; Hamilton W. McKay, Charlotte; Benjamin F. Royal, Morehead City; Franklin Webb Griffith, Asheville, and Benjamin J. Lawrence, Raleigh. Dr. Averitt was elected president for one year and Dr. Lawrence, secretary for six years. The entire membership is new, the terms of all members of the previous board having expired this year.

OHIO

A Bust of Banting.—A bust of Dr. Frederick G. Banting, Toronto, co-discoverer of insulin, will be unveiled at a summer camp for diabetic children near Cleveland, July 31. Dr. Banting will be present at the ceremony, which is sponsored by Dr. Henry J. John and the directors of the camp.

Hospital News.—The Peoples Hospital, Akron, announces the establishment of an outpatient department, the gift of Mr. and Mrs. Stanley H. Austin, in memory of their son, who died in 1931. Mr. R. E. Kepler has been appointed superintendent of the hospital and Dr. Edward L. Voke, New York, radiologist.

Personal.—The Canton Medical Library Society sponsored a banquet, June 1, in honor of six physicians who had completed fifty years of medical practice. Honor guests were Drs. Edgar J. March, Edward P. Morrow, Canton, and Milton M. Bauer, Uniontown; George A. Kelley, Allen W. Budd, Canton, and Seth Hattery, Massillon.——Dr. William E. Thompson, Bethel, is reported to have celebrated his ninety-seventh birthday, July 6. He is said still to conduct a limited practice.

Study of Whooping Cough.—A grant of $25,000 from the Rockefeller Foundation to finance a four-year study of whooping cough has been announced by Western Reserve University. Dr. Gerald S. Shibley, associate professor of medicine in the medical school, will conduct the investigation, which will cover etiology, prevention, diagnosis and treatment. Cases appearing in the dispensary of Lakeside Hospital and in the community will furnish the material for observation. Dr. James Angus Doull, professor of hygiene and public health, will cooperate in the study.

Society News.—Dr. Andre Crotti, Columbus, addressed the Madison County Medical Society, London, June 30, on diverticulum of the esophagus.——Dr. Chester D. Christie, Cleveland, addressed the Mahoning County Medical Society, Youngstown, June 21, on diabetes.——Dr. Franklin C. Beeks, Portsmouth, among others, addressed the Adams County Medical Society, June 15, on urology as it concerns the general practitioner.——Dr. Karl D. Figley, Toledo, made an address on treatment of hay fever and pollen asthma before the Auglaize County Medical Society, June 16, in Minster.——Dr. Arthur G. Helmick, Columbus, addressed the Athens County Medical Society, June 6, on "Diarrheal Diseases of Children."——Dr. Mark Millikin, Hamilton, made an address before the Crawford County Medical Society, Bucyrus, June 6, on the social aspects of medicine.

PENNSYLVANIA

Personal.—Dr. Frank F. D. Reckord, Harrisburg, recently received the honorary degree of doctor of science from Gettysburg College, Gettysburg, during its centennial anniversary.——Dr. Frederick Whitney Davis, Scranton, has been appointed health officer of Lackawanna County, succeeding Dr. Frank R. Wheelock.——Dr. Harold L. Foss, Danville, received the honorary degree of doctor of science at the annual commencement of Bucknell College, Lewisburg, June 6.

Society News.—Drs. Joseph H. Barach, Pittsburgh, and Henry W. Salus, Johnstown, addressed the Cambria County Medical Society, Johnstown, July 14, on "Blood Pressure" and "Historical Diseases and Their Conquerors," respectively.——Dr. Charles H. Mayo, Rochester, Minn., among others, addressed the meeting of the fourth councilor district of the Medical Society of the State of Pennsylvania, Eagles Mere, June 18, on "The Sympathetic Nervous System in Control of Bodily Functions."

Philadelphia

Hospital News.—A fund of $1,000,000 was recently appropriated to the Navy Department by the United States Senate to allow immediate construction of the new Philadelphia Naval Hospital.

Personal.—Helen Dean King, Ph.D., Bryn Mawr, of the staff of the Wistar Institute of Anatomy and Biology, was one of the recipients of the Ellen Richards research prize of $2,000 recently awarded by the Association to Aid Scientific Research by Women, in recognition of her research in genetics. Annie J. Cannon, Sc.D., astronomer at Harvard University, Cambridge, Mass., shared the award with Dr. King.

RHODE ISLAND

Society News.—Drs. Eske H. Windsberg and Samuel Morein addressed the Providence Medical Association in May on "Thoracoplasty in the Treatment of Chronic Pulmonary Tuberculosis" and "Diaphragmatic Hernia, Symptomatology and Diagnosis," respectively.——Dr. Cecil C. Dustin, Providence, addressed the Washington County Medical Society, Charlestown, July 13, on anemia.

WEST VIRGINIA

Society News.—A symposium on obstetrics was a feature of a recent meeting of the Mercer County Medical Society; the speakers were Drs. Harry G. Steele, Bluefield; Evans M. Tanner, Bluefield, and John I. Markell, Princeton.——The Logan County Medical Society was addressed, June 15, by Drs. William W. Strange, Huntington, on "Comments on Acute Appendicitis," and William Edwin Matthews, Huntington, "Management of Gonorrheal Urethritis."——Dr. Walter W. Point, Charleston, discussed "The Average Normal Case of Pregnancy" before the Mingo County Medical Society, June 9, in Williamson.——The Kanawha County Medical Society was addressed, June 14, by Drs. Rome H. Walker, Charleston, on "Local Anesthesia in Treatment of Fractures," and Roy O. Halloran, Charleston, "Some Common Skin Affections."

WISCONSIN

Old Apparatus Presented to Museum.—Dr. Joseph L. DeCock, Green Bay, recently presented a valuable medical set to the Public Museum of Green Bay. According to the *Wisconsin Medical Journal*, the set is from 75 to 100 years old, and includes two types of scarificators; alcohol lamp, suction cups and a cupping device.

Society News.—Dr. Hansford H. Milbee, Marshfield, read a paper on "Coronary Disease" before the Clark County Medical Society recently, and Dr. John E. Gonce, Jr., Madison, spoke on "Restlessness in Infancy."——The Eau Claire and Associated Counties Medical Society was addressed in Eau Claire, June 13, by Dr. George W. Beebe on "Diagnosis of Tuberculosis."——Speakers before the Fourth Councilor District Medical Society in Lancaster, June 7, included Drs. Horace K. Tenney, Jr., Madison, on "Differential Diagnosis of Hypertrophic Pyloric Stenosis," and Francis D. Murphy, Milwaukee, "Bright's Disease and Its Management."

Personal.—Dr. Arthur F. Stueck has been appointed coroner of Manitowoc County, succeeding the late Dr. William G. Kemper.——Dr. Arthur J. McCarey, Green Bay, recently received from the war department the Medal of the Purple Heart, for exceptionally meritorious and conspicuous services with the fourth division, American Expeditionary Forces.——Dr. and Mrs. J. W. Burns, Appleton, celebrated their sixtieth wedding anniversary, June 30. Dr. Burns is said to have been the first white child born in the village of Oakfield.——Dr. Frederick J. Woodhead, Waukesha, was appointed city physician to succeed Dr. Arthur J. Williams.

GENERAL

Warning Against Impostor.—A number of physicians and nurses in Indiana and Michigan have been victimized by a man claiming to be a representative of the physicians' supply firm of Frank S. Betz Company of Hammond, Ind. His method is to call on physicians, show a catalogue of the firm, and take orders for goods, securing cash or partial cash payment and leaving town before being caught. This man has called himself by various names, including Leo Cooper, T. W. Scott and J. B. Thompson. He has dark hair and eyes and a very tanned complexion, is about 5 feet 6 inches tall, and weighs about 135 pounds. He appears to be about 35 years old. In one instance he offered a highly attractive trade-in proposition on a blood pressure apparatus and persuaded the physician to let him carry away the old apparatus. Members of the profession are warned to be on the lookout for this man.

Deaths from Alcoholism.—Reports recently issued by the U. S. Bureau of the Census indicate that 4,158 persons died of alcoholism in 1930 in the death registration area, which includes forty-seven states (Texas the exception) and the District of Columbia. This represents a rate of 3.5 per hundred thousand estimated population, compared with 3.7 in 1929 and 4 in 1928. Nevada had the highest rate of any state, 14.3; South Dakota the lowest, 1. Rhode Island was second, with a rate of 8.3. Charts showing the rates since 1910 record the highest death rate during that period (5.9) for 1913; the lowest (1) for 1920. The highest number recorded is 4,627 for 1928 with forty-four states reporting; the lowest, 900 for 1920, with thirty-four states reporting. In 1910, when the death registration area included only twenty-one states and the District of Columbia, 2,909 deaths were reported.

Society News.—Dr. Henry S. Plummer, Rochester, Minn., was elected president of the American Society for the Prevention of Goiter at the annual meeting in Hamilton, Ont., in June.——Dr. Arthur N. Collins, Duluth, was elected president of the Great Northern Surgeons' Association at its annual meeting in Duluth, Minn., recently. Dr. Roscoe C. Webb, Minneapolis, is the secretary. The next annual meeting of the association will be held in Portland, Ore., June 15-17.——The fourth congress of the Pan American Medical Association will be held in Dallas, Texas, beginning March 21, 1933, according to an announcement by the executive committee. The committee has appointed Dr. John O. McReynolds, Dallas, president of the association, to succeed Dr. Aristides Agramonte, who died in August, 1931.——In the medical section of the American Prison Association, which will hold its sixty-second congress in Indianapolis, October 3-6, speakers will include Drs. Earl D. Bond, Philadelphia, on "Behavior Disorders Following Encephalitis"; Paul C. Bucy, Chicago, "Surgical Treatment of Traumatic Epilepsy," and Max A. Bahr, Indianapolis, "Psychiatry in Relation to Crime."

Safeguarding Bequests for Hospitals.—The Revenue Act of 1932, recently enacted by Congress, imposes no federal inheritance tax on hospitals that receive bequests, as some hospital officials have thought. The purpose of section 807 of the new act is not to impose an inheritance tax on hospitals but to limit the deduction for charitable bequests under the estate tax law to such amounts as the testator has in fact or in law devised or bequeathed to charity. Under the old act, absurd results were reached. If a testator gave his residuary estate to charity and directed that federal and state death duties be paid out of such residuary estate, the result might be that nothing was left for charity. In such cases, notwithstanding the fact that charity received nothing, the old law allowed a charitable deduction from the gross estate of a wholly fictitious sum; namely, what the testator would have given to charity if the federal and estate death duties had not absorbed the whole of the residuary estate. Charitable bequests to hospitals may be safeguarded if the testator makes provision for such bequests before inserting a residuary clause in his will, or if he provides in his will a special fund for the payment of federal and state death duties.

Congress of Physical Therapy.—The eleventh annual session of the American Congress of Physical Therapy will be held at the Hotel New Yorker, New York, September 6-9. Dr. F. Howard Humphris, London, England, the foreign guest, will have for one of his topics "Artificial Sunlight in the Treatment of Health." Other speakers will include Drs. Gustav Kolischer, Chicago, the incoming president, "Further Considerations of Diathermy in Malignancy"; Edgar Mayer, Saranac Lake, N. Y., "Physical Therapeutic Measures in Treatment of Tuberculosis"; Alexius M. Forster, Colorado Springs, "Sanitoria Aspects of Tuberculosis with Special Reference to Nonsurgical Methods of Treatment"; Ira I. Kaplan, New York, "Radiation Therapy in Medicine—Its Function and Application"; Grant E. Ward, Baltimore, "Factors Influencing End-Results of Electrosurgery"; Victor E. Levine, Omaha, "Disease and Climate"; Frank H. Krusen, Philadelphia, "Physical Therapy: An Aid to Routine Medical and Surgical Practice"; Norman E. Titus, New York, "Traumatic Synovitis"; William Martin, Atlantic City, "Types of Circulatory Stasis: Their Treatment by Physical Measures"; William H. Kennedy, Indianapolis, "Radium Treatment of Lesions About the Head, Face and Neck"; Joseph Prenn, Boston, "Physiological Aid to Hearing and Its Systematic Reeducation"; Charles A. Stimson, Eaton Rapids, "Observation with Castor Oil and Its Derivative Sodium Ricinoleate"; Frederick H. Morse, Boston, "Abortive Treatment of Threatened Colon Malignancy." Symposiums will also be a part of the program, including those on tonsil electro-

surgery, fever therapy, arthritis, electrocardiography and urology. Clinics will feature the activities of the congress on Saturday, September 10, in various hospitals throughout the city.

Medical Bills in Congress.—*Changes in Status:* H. R. 4743 has been approved by the President, providing federal subsidies for the promotion of vocational rehabilitation of persons disabled in industry or otherwise (Public Law 222). H. R. 7518 has been reported to the Senate, with amendment providing that the President, under such regulations as he may prescribe, may authorize the board of health of the Canal Zone to issue licenses to practice the healing art, which regulations shall state the conditions under which such licenses shall be issued and include provisions for revocation of licenses for cause (S. Rept. number 940). H. J. Res. 361 has passed the Senate, without amendment, authorizing the Surgeon General of the United States Public Health Service to make a survey as to existing facilities for the protection of the public health in the care and treatment of leprous persons in the territory of Hawaii. *Bills Introduced:* S. Res. 271, by Senator Bingham, Connecticut, to request the Surgeon General of the United States Public Health Service to make inquiry among the leading physicians and chemists in the United States as to the amount of alcohol a beverage may contain without being intoxicating. S. 4927, by Senator Wagner, New York, to provide compensation for disability or death resulting from injury to employees engaged in interstate and foreign commerce, and in commerce solely within any territory or the District of Columbia. It provides, among other things, that the employer shall furnish such medical, surgical and hospital service as the nature of the case may require, the physician or hospital, apparently, to be selected by the employer. It provides that all fees shall be limited to such charges as prevail in the same community for similar treatment of injured persons of like standard of living and shall be subject to regulation by a "Federal Interstate Commerce Compensation Commission," created by the bill. H. R. 12843, by Representative McCormack, Massachusetts, to change the name of the retail liquor dealers' stamp tax in the case of retail pharmacies to "medicinal spirits stamp tax."

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Mary's Free Hospital for Children, New York, $50,000 by the will of the late Edward B. Sexton.

Long Island College Hospital, Brooklyn, $5,000 by the will of Henry E. McGowen.

St. Mark's Hospital, New York, $10,000 by the will of Henry F. Homes.

Knickerbocker Hospital, New York, $10,000 by the will of James C. McGuire.

Lebanon and Mount Sinai hospitals, New York, $10,000 by the will of Bernhard Mayer.

Presbyterian Hospital, Philadelphia, $1,000 by the will of John J. Shaw.

Methodist Episcopal Hospital, Brooklyn, $25,000 by the will of the late James Hamilton Gill.

Peekskill Hospital, Peekskill, N. Y., $5,000 by the will of the late David W. Erskine.

Lawrence Hospital, Bronxville, N. Y., $123,365 by the will of Mrs. Caroline C. Newcomb.

Stuyvesant Square Hospital, New York, $22,500 by the will of Arthur J. Slade.

Monticello Hospital, Monticello, N. Y., $3,500 by the will of Mrs. Clara Michaelson.

Pottsville Hospital, Pottsville, Pa., $6,000 by the will of Emma L. Spiese.

North Adams Hospital, North Adams, Mass., $20,000 by the will of Mary Agnes Blackinton.

Gaylord Farm Sanatorium, Wallingford, Conn., $5,000 by the will of George P. McLean, Simsbury.

St. Mary's Hospital, Green Bay, Wis., $15,000 by the will of Mrs. Margaret A. Diamond.

Long Island College Hospital, Brooklyn, $5,000 by the will of the late Mrs. Amelia P. Dixon.

Seton, Saint Francis, St. Vincent's, French, New York and Babies hospitals, all of New York, about $7,100 each by the will of Mrs. Clara A. Baab.

St. Mary's Hospital for Children and Stuyvesant Square Hospital, New York, $16,837 each, and St. Luke's Hospital, $10,103 by the will of Mrs. Hannah M. Lydig.

Mount Sinai Hospital, $30,000; Montefiore Hospital, $10,000; and Hospital for Joint Diseases, $5,000 by the will of the late William R. Rose. All are in New York.

Norwegian Lutheran Deaconesses' Home and Hospital, Brooklyn, $5,000 by the will of the late Mrs. Tecla Jensen Eagle.

French Hospital, $10,000; Mount Sinai and Montefiore hospitals, $5,000 each by the will of the late Mrs. Jeannette D. Beaumont. All are in New York.

St. Luke's Hospital, New York, $927,500 by the will of Miss Laura Shannon.

Hartford Hospital, Hartford, Conn., $23,000 by the will of the Misses Lillian and Anna Andrews.

Albany Hospital, Albany, N. Y., $15,000 by the will of Mrs. L. T. Lansing.

Albany Hospital for Incurables, Albany, N. Y., and Samaritan and Troy hospitals, Troy, N. Y., are beneficiaries of a total of $100,000 from the will of Howard D. Bonesteel.

Western Reserve University School of Medicine, Cleveland, $300,000, anonymously given, to endow the Oliver Payne professorship of surgery.

Presbyterian Hospital, Philadelphia, $7,500 by the will of Miss Ida V. Eisen.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 25, 1932.

Report on Mental Deficiency

A committee was appointed by the council of the British Medical Association in November, 1930, to report on the medical problems presented by mental deficiency, especially with regard to the methods suggested to reduce its incidence and on the facilities for medical education on the subject. The committee which contained a number of experts on the subject, has now presented a report. In the causation, heredity is held to play an important part, but the evidence does not allow an expression of opinion as to the percentage of cases attributable to it. To assist investigation, the committee recommends that in the registration of marriages any blood relationship between the parties should be stated. Mendelian heredity was exemplified by a few records, in which mental deficiency appeared as a dominant. In family amaurotic idiocy it appeared as a recessive. But there is no simple genetic basis of mental deficiency in general. The applicability of the mendelian theory in heredity proves the possibility of human "carriers" of both physical and mental characters, as is illustrated in hemophilia.

In regard to the diagnosis of mental deficiency, the committee finds a high correlation between scholastic and social incapacity; nevertheless the two are not identical. Certain individuals may be socially defective and yet present no scholastic defect; conversely, certain children may present considerable scholastic incapacity but subsequently prove to be socially capable. Hence the certification as mental defectives of children who are merely defective in scholastic educability may impose a stigma on them which subsequently may operate to their disadvantage.

In the care of mental defectives, the committee considers that the large colony has great advantages, since it is possible to organize a wide variety of employment and to secure for every inmate, even of the low grades, a suitable occupation. Moreover, the higher grades can be separated and specially trained with a view to eventual replacement in the community under supervision. When a diagnosis of mental deficiency has been made, the patient should always be transferred to an institution. Provision must be made for (1) the education and training of mental defectives to the full extent of their powers, (2) a carefully selected environment within the general community for defectives suitable for it, and (3) the appointment of officers (preferably medical psychologists) to determine whether those guilty of antisocial offenses are mental defectives and, if so, to have them replaced in colonies.

STERILIZATION

On the disputed question of sterilization of mental defectives, the evidence "indicates that if this operation should be applied only to certifiable mental defectives, the incidence would not be appreciably reduced. To be really effective, the operation would have to be applied to many who are not certifiable mental defectives. That there are large numbers of mendelian 'carriers' of mental deficiency now at large in every civilized community is certain, but since they appear normal, it is not practicable to suggest that they should be sterilized." Notwithstanding the advocacy of sterilization by eminent eugenists, the committee holds that even widely applied sterilization of mental defectives would cause no appreciable difference in the number in the community for many generations. But there is a small number of mental defectives in respect of whom the chief social danger is propagation and who, were this danger removed, could live in the community. In such cases sterilization might be an appropriate subject to the following conditions: (1) restriction to suitable case; (2) not utilizing it to permit the discharge from

institutions of those incapable of living in the community; (3) adequate supervision of those sterilized to prevent promiscuous sexual intercourse and the spread of venereal disease. The committee notes with satisfaction that the government has appointed a body to investigate this question completely.

The committee also emphasized the need for greater facilities for instructing students in mental deficiency.

Lord Moynihan's Tribute to W. W. Keen

One of the things in which Lord Moynihan excels is a keen sense of the personal qualities of his compeers, and in the grace with which he can express it. Writing to the *Lancet* on the news of the death at the age of 95 of his "very dear old friend Dr. Keen," he says: "His eagerness in every form of intellectual pursuit never ceased to astonish his friends, sometimes even perhaps to embarrass them, for in pursuit of knowledge he spared no man. . . . His textbook of surgery was the first in our language to be based on bacteriology; it almost alienated our affections from 'Erichsen.' Many men considered him—though having heard Nicholas Senn and J. B. Murphy, I could never agree—the greatest teacher of clinical surgery America had ever known. His virility and force were well matched with sincerity and invulnerable accuracy, and tempered with sobriety." He was the protagonist of our ideas on vaccination, vivisection and laboratory research. "He was a man of decided views emphatically expressed; but he was, no less, the very flower of culture, the very perfume of courtesy. He had the happiest knack, excelled not even by Osler, of keeping in touch with his friends in all lands. It was justly said of Osler that many men in many lands hugged the belief that they were his particular cronies. That was certainly true of Keen." Coming to technical matters: "His work on the brain, nervous system, abdominal organs, upon the ravages of typhoid fever in their surgical relations, indeed upon all branches of surgery—and he practiced all with immense success—was perhaps the most considerable and the most inspiring of that of any surgeon in the States."

PARIS

(From Our Regular Correspondent)

June 15, 1932.

International Congress on Asthma

The program of the general congress of medicine has become so vast that congresses covering a narrower range of subjects, or which deal with the profound consideration of a single question, are becoming more numerous. In France, the mineral spring resorts, owing to their numerous hotels, are particularly suitable for the holding of this type of congress, especially if the disease under discussion is one of the diseases that the resort essays to cure. For example, there has been a congress of biliary lithiasis at Vichy, another at Vittel, and a congress on asthma at Mont Dore, which is known as a center for that disease. Prof. Fernand Bezançon presided at the congress. There were thirty-one communications—French and foreign. Mr. Bezançon opened the session with a masterful presentation of the medical theories pertaining to asthma. He reached the conclusion that one must assume an eclectic attitude and that every theory corresponds to certain particular types. Asthma is a syndrome resulting from widely different causes and not a disease of uniform etiology. The theory of asthma-neurosis and the theory of diathetic asthma shared, for a long time, the favor of clinicians. The discovery of anaphylaxis appears to have weakened these theories somewhat. Mr. Bezançon thinks, however, that anaphylaxis should strengthen these theories. Over against these theories that attribute to asthma general causes, Benzançon and his followers have in recent years emphasized the importance of the local, respiratory factor. The careful study to which they subjected the various forms of attacks, equivalents, precipitating causes, and kindred morbid relationships, caused them to assume at least two distinct types: one, diathetic, generally hereditary, often associated with other morbid manifestations; the other, acquired, and, so to speak, purely respiratory. A third type, which has some of the characteristics of each of the two others, is infantile asthma. This eclectic conception leads naturally to an eclectic mode of treatment. Mr. Pasteur Vallery-Radot spoke on the rôle of anaphylaxis in asthma—which he regards as important, and sometimes preponderant, but which, in his opinion, cannot explain all the cases. Mr. E. Bernard confined himself to a study of the nervous factors in asthma, a peculiar instability of the neurovegetative system and of a special sensitiveness of the bulb. Mr. Cordier of Lyons pointed out the rôle of the liver and the endocrine glands in asthma. Mr. Haibe of Namur considered asthma of "respiratory spine," of microbic origin; Mr. Halphen, the rôle of nasal lesions in the determination of asthma; Mr. Bourgeois, the equivalents of asthma (spasmodic coryza and all spasmodic attacks); Mr. Jacquelin, the kindred morbid relationships of asthma; Mr. Lesné and Mlle. Dreyfus-Sée, the etiology, pathogenesis and treatment of infantile asthma, which subject was likewise treated by Mr. Péhu of Lyons; Mr. Joltrain, the treatment of the asthmatic attack; Villaret and Justin Bezançon, the thermal and climatic treatment of asthma; Mr. Biancani, the physical therapeutic treatment of asthma; Professor Leriche and Mr. Fontaine, the surgical treatment of asthma, and Mr. J. Galup, the treatment of asthma at Mont Dore. Of the foreign authors, Mr. Carl Prausnitz of Breslau discussed the rôle of idiosyncrasy in asthma; Mr. McDowall of London, the physiologic aspects of the asthmatic attack; Mr. Bray of London, the hereditary factor in hypersensitiveness in general and in asthma in particular; Mr. Oriel of London, the factors of allergy in asthma; Mr. Mariano Castex of Buenos Aires, the factors of bronchial asthma; Professor Maranon of Madrid, endocrine asthma, and Mr. Storm Van Leuven of Leyden, the influence of the sun and of the climate on asthma. Frugoni and Melli of Rome assumed no other pathogenesis for asthma than allergy, and gave some observations on the transmission of this allergy from man to man. Mr. Danielopolu of Bucharest explained his theory of the reflex circuit; Mr. Longcope of Baltimore called attention to recent American researches on asthma, and espoused the thesis of Rackemann, who assumes an allergic type (40 per cent of the cases) and another type not exclusively allergic, in which an infection of the respiratory tracts intervenes.

Discontinuance of the Société de l'Internat des Hôpitaux de Paris

The former interns of the hôpitaux de Paris established, April 28, 1904, a fraternal and scientific society, which played a certain part—especially before the war—in studying questions pertaining to the organization of hospital services in connection with competitive examinations for the securing of various medical professional degrees, and particularly in maintaining the prestige of the title of "former intern." The society held periodic scientific meetings and published at regular intervals a bulletin. Now the society has dissolved. Those of its members who became later hospital physicians or surgeons or specialists deserted it for the learned societies representing their specialties. Those who had confined themselves to general medical practice lost interest. Dr. Jayle, the secretary who recently announced its discontinuance, recalled the part it had played and the numerous brilliant lectures that it had organized, but admitted that it had outlived its usefulness.

Permission to Use Lecithin in the Manufacture of Chocolate Refused

The minister of public health consulted the Academy of Medicine in reference to the request of the manufacturers of chocolate that they be authorized to use a small amount of lecithin derived from vegetable substances, notably the soy

bean, in their manufacturing processes. The academy appointed a special committee to prepare the response to be sent to the ministry. Mr. G. Bertrand was called on to draw up the report of the committee. The conclusion of the report was to the effect that:

> The decree of Dec. 19, 1910, having prohibited the use, in the manufacture of sweetmeats, confectionery and chocolate articles, of coloring matter or aromatic chemical products other than those the use of which is declared permissible and whose mode of use is regulated by this decree, the Academy of Medicine recommends that the authorization requested by the chocolate manufacturers be denied.

The use of lecithin under the conditions proposed will, therefore, be regarded as an adulteration.

BERLIN

(From Our Regular Correspondent)

May 20, 1932.

The Toxicity of Combustion Products of Motor Fuels

Too little is known among physicians concerning the toxicity of motor fuels and their combustion products. Dr. Liesegang, member of the Prussian Landesanstalt für Wasser-, Boden- und Lufthygiene in Berlin-Dahlem, has reported on the subject, on the basis of his research. He has already contributed to the knowledge of the carbon monoxide content of exhaust gases (1928). On the basis of his observations, rules for the prevention of accidents were published, and the information and the warnings contained therein have reduced considerably, in recent years, the number of poisonings resulting from exhaust gases. The question as to whether, aside from carbon monoxide poisonings in garages, also chronic toxic effects may be produced by components of exhaust gases—for example, in the circulatory system or in the lungs—cannot be answered with certainty as yet. It will doubtless be difficult to furnish proofs of either a positive or a negative opinion. Since 1928, further research on motor fuels has been carried out. In the open, carbon monoxide is diffused so quickly, because of the air suction and the wind, that in the streets of large cities, even though the traffic is heavy, carbon monoxide poisoning is virtually excluded. Aside from carbon monoxide, saturated and unsaturated hydrocarbons, aromatic and alipathic alcohols, aldehydes and ketones may be present and possibly lead to chronic injuries. The motor fuels themselves are to be considered as possible toxic factors only where power fuels are stored or are shifted; for example, in filling stations. As a rule, it is only a question of the products of complete or partial oxidation of the motor fuels or oils. There are, as is well known, various mixtures of motor fuels on the market, and it is probable that further new mixtures will be tried. Liesegang reaches the conclusion that intoxications from the vapors of benzine, benzene and methyl alcohol lead only rarely to enduring injuries. When that occurred it was owing to the fact that the fluids concerned had been caused to vaporize. In any event, it appears necessary to examine the toxic qualities of a new motor fuel that contains a certain proportion of methyl alcohol, and the federal public health service has already such an inquiry under consideration.

Arsenic Poisoning from Contaminated Wine

Recently there appeared, in French and German newspapers, accounts that on board various French merchantmen more than 300 French officers and sailors had been taken ill following the drinking of wine, and, for the most part, had to be hospitalized. Two of the victims had already succumbed. The symptoms were explained by the demonstration of considerable quantities of arsenic in the wine. According to a statement of Professor Mühlens in the *Deutsche medizinische Wochenschrift*, six further cases were observed in the Hamburg Institut für Schiffs- und Tropenkrankheiten, in the crew of another steamer. The illness, which affected nearly the whole crew of thirty-two men, is said to have developed during a voyage to Africa, beginning in February, 1932. The symptoms were typical for arsenic poisoning: gastro-intestinal symptoms, exudative dermatitis, with subsequent melanodermia and hyperkeratoses, eye symptoms, and the like. The diagnosis and the cause were soon clarified. The ship's crew had filed a complaint with the French general consul in Hamburg to the effect that the wine on board their boat was contaminated. The crews of French ships receive a daily allowance of 1 liter of red wine. The wine was subjected to a chemical analysis in Hamburg, which showed that it contained considerable quantities of arsenic and sulphurous acid. According to a statement in the French press, in France from 3 to 12 mg. of arsenic per liter of wine was shown to be present. The wine had been taken on board in Havre without payment of duty and was said to be of Spanish origin. The question as to how the arsenic got into the wine is not yet settled. A plausible assumption is that the grapes were seriously contaminated with arsenic by the spraying of the vines with copper sulphate or other arsenic-containing solutions to protect them against insects. Sulphurous acid may have got into the wine from applying sulphur to the wine casks in the cleansing process. There is another possible explanation—namely the addition of arsenic-containing sugar, or the like, to the wine. A similar group-poisoning from wine was reported from Toulon and vicinity in 1888 (500 cases of illness and 15 deaths). There was also an outbreak of poisoning due to arsenic in beer in Liverpool in 1901: 6,000 cases and 70 deaths. The beer had been prepared by the fermentation of potato sugar that had been obtained from potato starch by hydrolysis with arsenic-containing sulphuric acid.

Neurologic Clinic Dedicated in Münster

In Münster (Westphalia), the psychiatric-neurologic clinic, erected during 1927-1931, was recently dedicated. Westphalia's university is thus enriched with a generously appointed institute that, from the standpoint of modern equipment, has scarcely its equal in Germany. The building and equipment cost nearly $500,000. The research laboratories are larger than one usually finds in the other large clinics of this specialty in Europe. The close connections between the two construction units, one of which is designed chiefly for the accommodation of neurologic patients, while the other serves mental patients, have taken far reaching account of modern demands for an "open" psychiatric clinic. The extensive arrangements for baths of all kinds, gymnastic exercise, roentgenology and neurosurgery, and the numerous research laboratories for histologic, psychologic, serologic-chemical, physical and genealogical investigations, enables one to carry out independently all forms of treatment and all types of research.

Death of Professor Schlossmann

Prof. Arthur Schlossmann, director of the children's clinic of the Medizinische Akademie in Düsseldorf, died, June 4, at the age of 65. Schlossmann performed an especially meritorious service by applying his great organizing ability to the development of pediatrics as a special branch of medicine and by the unquenchable optimism with which he supported the cause of pediatrics. In 1897, Schlossmann established in Dresden the first *kinderheilanstalt* (pediatric clinic). When he came to Düsseldorf, in 1906, he erected, in spite of the heavy child mortality of that period, as a motto over the entrance to the clinic the words *Hier wird nicht gestorben* (patients do not die here) and thus succeeded in gaining the confidence of the people. In collaboration with Professor v. Pfaundler, he published the "Handbook of Pediatrics." He also collaborated in the publication of the "Handbook of Social Hygiene." The organization of federal care of cripples and the law pertaining to midwives are, in their present legal form, partly his work. He was one of the principal organizers of the large exposition for health culture and physical education, held in Düsseldorf in 1926. His animated spirit, far reaching interest and enthusiasm made for him many friends, despite his sharp criticisms.

MOSCOW

(From Our Regular Correspondent)

June 3, 1932.

Transplantation of the Cornea

At a meeting of the Odessa Medical Society, April 20, Prof. W. P. Phylatov read a report about transplantation of the cornea as a method for combating blindness. In the Odessa Medical Institute clinic for eye diseases the partial transparent transplantation of the cornea was made on eighty-five eyes. Durable success of transparent adherence was obtained in twelve cases. In ten cases the vision improved. There was no improvement of vision in two cases. Eight patients were under supervision from one to six years, four from four to seven months. The operation was done in six cases because of a complete cecatrix. In the other cases there was an unchanging dimness after a superficial burn or parenchymatous keratitis. For this reason the speaker deems it necessary to register all the persons in the Soviet Union who have lost their sight from parenchymatous keratitis. Of the total number of blind persons (234,833, according to statistical data for 1931) nearly half are amenable to operation. For this purpose Professor Phylatov proposes to increase the number of patients in the eye clinics and to guarantee the necessary material for transplantation. For this purpose the eyes enucleated from patients, as well as those of people who die in hospitals, could be sent the clinics where these operations are performed. The reporter assumes that the eyes of corpses can be transplanted if promptly removed. They need not be used immediately if all conditions of asepsis, temperature and so on are observed. The objection of the relatives of the deceased is one of the chief obstacles. It must be removed by special legislation.

Professor Phylatov has introduced into the operation the following improvements: covering of the transplant by a conjunctival band and nourishment of the transplant by means of baths from embryo juice. Five patients with transplanted cornea were demonstrated at the meeting. After a lively exchange of opinions, the Odessa Medical Society approved all the chief points made in Professor Phylatov's paper.

Public Health in the Second Five Year Plan

The first five year plan will be finished for the most part in 1932, a year earlier than originally proposed. The government of the Soviet Union is working out a scheme for the second five year plan of public economics, industry and culture. Its principal aim is the formation of a socialistic society without classes in the Union of Socialist Soviet Republics. On the basis of the general increase of public incomes that are wholly used for the needs of the working masses, a sharp rise of their prosperity must be obtained. A complex scheme of health direction has been adopted, transforming labor into a source of physical and creative energy. It corresponds to measures used for progress in the allied field of public economics—communal housing, public nutrition, general education, and changing of the mode of living according to socialistic principles. Thus a social foundation for the future society without class distinctions is accomplished.

The following points are of a great significance in the hygienic supervision of labor: mechanization and electrification of industry on the basis of technical reconstruction, and the wide use of means of production in order to protect the health and strength of workers. Living conditions in cities will be made healthful with the view of turning the latter into mighty labor collectives. These healthful conditions include extension of water supplies and conduits, paving of streets and roads, prevention of noise and street accidents, increasing the number of trees and the amount of verdure in towns and industrial plants, and the abolishment of prostitution in all its varieties. In the socialistic town there will be no place for the development of rheumatism, tuberculosis, venereal diseases or epidemics. The public education of children from the earliest age and the augmentation of living space will help to develop a healthy generation. The difference between the town and the country will disappear. Agricultural labor will improve the health of peasants.

The Soviet farms, machine tractor stations and plants will receive the services of health centers, which will not only give medical and prophylactic aid but also superintend technological processes, creating healthful conditions for labor. Hospital assistance, including ambulances, consultations and polyclinics, as a means for preventing morbidity and invalidity, will embrace all the industrial proletariat and peasants.

The second five year plan of public health must completely abolish industrial accidents. There will be an end to most of the so-called social diseases—typhus fever, typhoid, remittent typhoid, variola, trachoma, malaria, scabies, favus and, partially, syphilis. A barrier will be placed against the dissemination of tuberculosis. Children's diseases will decrease. More nurseries for all children will be constructed. Women will stay before and after delivery in special houses for the mother and child. In the schools, athletics and gymnastics will play a large part in preparing a healthy generation. The leisure hours of industrial workers and peasants must not be spent in idleness and boredom but in conditions leading to further improvement of their mental and physical strength. The correct organization of leisure time in plants and in homes has great significance in raising the efficiency of labor. Out of town camps and parks for culture and rest, with active forms of amusement, must be widely spread. Travel, as a most effective dynamic form of rest, giving to the worker a knowledge of his own country, will take the place of houses of rest, existing at present. Physical culture, sports and athletics will be encouraged.

The medical staff will consist of the physician and the physicians' assistant. The latter will help in the prompt solution of problems of organization, and the physicians will be able to pass over to their assistants various small procedures which take at present much of the physician's time. The medical staff must be well acquainted with the technic and organization of the industries in the region where they work. Workers in their everyday activity will help to realize large health measures that are carried out now only by the medical staff.

An all-union conference on the questions of planning public health in the second five year plan is now being held in Moscow. A detailed report of it will be given later.

JAPAN

(From Our Regular Correspondent)

May 31, 1932.

Research on the Cause of Smallpox

Drs. T. Taniguchi, S. Hosokawa, S. Riku and Y. Komura of the Osaka Imperial University Medical Department have stated in various medical journals that they have found a micro-organism after ten years of study, which they venture to say is the causative agent of smallpox. In all vesicles studied from twenty-four smallpox cases in Osaka, among soldiers who came back from Shanghai, they found, in almost a pure culture, the same organism. They hold that this micro-organism differs from micro-organisms that have been claimed to be the cause of smallpox by other research workers and they have named it Jenneria "variolaen G. U. Sp.," after the name of William Jenner.

A Study of Criminal Abortion

Dr. R. Okamoto published his research on the methods of criminal abortion in Japan, which include the insertion of various objects into the vagina or cervix, massage, acupuncture in the abdominal portion of the uterus, and medicine taken internally. The majority of illegal abortions are committed by means of the insertion method. According to his investigation, of 320 cases, 285, or 89 per cent, were done that way. The

kinds of objects inserted amounted to over sixty. Stalks of "butter-bur," a sweet coltsfoot, and acid solution are the most popular. Wooden or bamboo chopsticks come next. The objects inserted vary according to the locality, tradition or customs, but, on the whole, soft, springy substances are used so as to avoid injury. It is strange, he continues, that there were only 29 deaths caused by this illegal method out of 320 cases, or 9 per cent, of which the majority were due to puerperal fever. The period of delivery varied according to the month of pregnancy, age of the woman, number of pregnancies, physical condition and the means used, but the statistics show that a third of them aborted within two days, another third within one to three days, a half of the remainder within four days, and only a few within eight days or more.

The Science Institute at Shanghai

Since the outbreak of hostilities between Japanese and Chinese soldiers in February, the Institute of Science in the international city has been closed, and rumor had it that the institute would sooner or later be removed somewhere else in the near future. Dr. Yokote, the director, and all his assistants who had come back in Japan, are reported to have gone back again to Shanghai in order to reopen the institute, as peace is restored.

Isolation of Children Born of Lepers

In the Oshima Island Leper Sanatorium, under the management of several local governments, the children born of lepers are to be placed in isolation to determine whether this disease is transmitted from the parents or is caused only by contagion. The nurses are newly appointed, and this study of lepers' babies is being watched with keen interest.

Irregularities in the Admission of Medical Students

The entrance examination to any kind of medical college is characterized by the keenest competition. There are usually from six to ten times as many candidates as can be actually admitted. On the other hand, the nongovernmental medical colleges are compelled to face financial difficulties. The only way left to them is to collect contributions from the parents of the students. Surplus candidates and financial difficulty are easily associated in bringing about illegal admissions granted to the boys of wealthy families. Some parents of candidates voluntarily or involuntarily donate just before the entrance examination a sum of money amounting to from 200 to 1,000 yen as a contribution to the school fund. A rumor that the medical colleges are imposing unjust tests on other candidates made the educational department send inspectors to the colleges to examine closely the entrance examinations. They are reported to have read the examination papers, and audited the accounts, only to find some unreasonable selections and admissions. A sensation was created. The college directors, however, are of the opinion that without receiving contributions they are unable to maintain the colleges which are not assisted by the government. Whether the college authorities concerned are legally guilty or not is a matter yet to be determined.

Falling Off of Candidates for Higher Degrees

Graduates of universities generally have recently found it difficult to obtain positions in any line of business, but medical graduates hitherto never had been menaced by unemployment. This year, however, the graduates of the medical colleges barely found positions, which means it will be difficult for next year's graduates to find situations. Medicine for the last ten years was deemed the ideal profession for youth, and that brought about too many applicants for medical colleges. It is reported that applicants this year decreased by 30 per cent. The number of new graduates this year is 1,496, all told, both from government and from private universities, an increase of 213. Every year those graduates, on finishing the course, remain at school for a few years more without seeking positions out in the world, in the hope of obtaining the highest doctor's degree, which is conferred on presentation of a thesis. Without this honorable title few physicians have heretofore enjoyed prosperity, such being the custom and belief of the old and the new Japanese. Patients would pay much more to these practitioners. But owing to the depression, patients at present are inclined to avoid being examined by this kind of physician, who charge a much higher fee. A marked tendency is seen this year for the new graduates to seek positions or enter practice as soon as they graduate, considering it wiser to secure social footing earlier. This tendency naturally causes the shortage of positions as well as the lowering of the salary. Thus the golden age of Japanese physicians seems to be passing.

BUENOS AIRES

(From Our Regular Correspondent)

May 20, 1932.

A New Tax on Physicians

A new tax has been imposed on the medical profession, in addition to the revenue tax which physicians have paid for a long time and the annual payment of 100 pesos ($50) for their license. The imposition of this new tax has been received with an open manifestation of discontent. The amount to be paid is based on the monthly income of the physician, which is calculated as being three times as much as he pays for rent for the house in which he lives. A large number of physicians cannot afford to make this payment.

Reduction of Expenditures of the Faculties of Medicine

The government made great reductions in the expenses of the four schools of medicine of Argentina, as well as in all the ministries of the government in an attempt to balance the national budget. The Faculty of Buenos Aires has always received 3,000,000 pesos ($1,500,000) for its expenses, which also include the support of free dispensaries. At present 800 pesos ($400) was taken from the amount. The salaries of the members of the faculty are going to be cut down and the physicians are going to be charged with a new revenue tax. With the money that is collected in one form and economized in the other by the government, the budget will be balanced and the government will continue to make the payments of foreign debts, since Argentina is the only country in South America which is still making the payments on its debts.

Disturbances in Schools of Medicine

The medical courses at the Faculty of Buenos Aires began in May instead of in March as they were scheduled. A group of agitators, students who were in contact with politicians and had rather socialistic ideas, threatened to go on strike and they sent several committees to the minister of public education and to the president of the republic with complaints against the members of the faculty, whom they requested to resign. The faculty asked the government to prevent the thirty or more agitators from entering the school. The government placed at the disposal of the faculty a group of policemen for a period of one week. Every student who wished to enter was requested to present a certificate of identification. The strike failed. At present from 3,000 to 4,000 students are attending the school daily. In justice to the students, it must be stated that they themselves are attempting to preserve order.

At the University of Córdoba there is a strike of the students taking place. When the courses were opened, Professor Berman invited the labor union to send delegations to the classes in the school. Other members of the faculty refused to permit others besides students to attend their lectures. Then Professor Berman said that he would give his lecture elsewhere. At a conference of members of the faculty, Drs. Berman and Orgaz made some motions which were not approved by other members of the faculty and they were suspended from their positions as advisers and professors. The schools of La Plata and

Rosario are open and working without disturbances. However, in the school of Rosario a new board of directors is going to be nominated.

Hypophysis and Thyroid Gland

From studies made by Professor Houssay and his pupils on the relation between the hypophysis and the thyroid gland, the author reaches the conclusion that the secretion of the anterior lobe of the hypophysis is necessary for the normal development and maintainance of the structure and normal functions of the thyroid gland. Hypophysectomy produces the following changes in the thyroid gland of dogs: either hypoplasia or ponderal atrophy, marked flattening and atrophy of the thyroid cells and of their nuclei, absence of activity for thyroid secretion, presence of dense and nonvacuolated colloids and increase of the percentage of iodine content in the gland. During the first days after hypophysectomy, there is a transient hyperactivity of the thyroid gland. The content of iodine in the blood increases greatly during the first few weeks and it returns to normal between one and two months and then it continues either normal or subnormal. The injection of an extract from the anterior lobe of the hypophysis produces the following changes in the thyroid of dogs: first, transient diminution of the weight of the thyroid and, later, hypertrophy; histologic hyperactivity with reabsorptjon of the colloids, which become fluid and vacuolated and slightly stained; presence of cylindric and hypertrophied cells of double the normal size and in time production of epithelium with folds. The percentage of iodine in the thyroid gland diminishes, but the iodine content in the blood increases. The injection of extract from the anterior lobe of the hypophysis into guinea-pigs causes hypertrophy and hyperactivity of the thyroid gland. The injection of the same extract into rats is not followed by either ponderal hypertrophy or histologic reaction. The metabolism of normal dogs is increased by the administration of extract from the anterior lobe of the hypophysis by the peritoneal route. The action is observed also in dogs deprived of the thyroid gland, although not in the same degree of intensity as in normal dogs. The metabolism is as an average 15 per cent lower in dogs deprived of the hypophysis than in the control dogs. The metabolism of both dogs deprived of the thyroid gland and those deprived of the hypophysis is increased on administration of extract from the anterior lobe of the hypophysis.

Marriages

THOMAS MARWIL to Miss Josephine Jacobs, both of Detroit, July 7.

SAMUEL ROTH to Miss Helen Spechler, both of New York, July 9.

ELMER B. M. CASEY, to Miss Theresa Jean Migel, both of St. Louis, March 29.

MARCO S. PETRONE, Chicago, to Miss Jennie Mikulich of Aurora, Minn., July 6.

JOSEPH P. FRANKLIN to Miss Jean Arendes, both of Cumberland, Md., at Baltimore, July 5.

THEODORE SCHARLE, JR., Dubuque, Iowa, to Miss Sarah McMillan of Burlington, May 11.

HOMER KING VANN, Leesburg, Fla., to Miss Mary Beall Bridges of Hancock, Md., July 2.

WALTER EARL BARTON, Elmhurst, Ill., to Miss Elsa Viola Benson of Orange, Mass., July 2.

RICHARD C. DODSON, Rising Sun, Md., to Miss Annie Caddall of Abingdon, Va., June 30.

FRANK E. BOYD, Colfax, Iowa, to Mrs. Alice M. Little of Prairie City, in Omaha, Neb., May 18.

GEORGE LOUIS LE FEVRE to Miss Catherine Margaret Brinen, both of Muskegon, Mich., July 13.

GLENN RAYMOND JOHNSON, Ottumwa, Iowa, to Miss Jewell Russell of Montezuma, Ga., at Oak Park, Ill., May 7.

RALPH IRVING ALFORD, Belleville, N. J., to Miss Anne Louise Comins of Babylon, Long Island, N. Y., June 29.

Deaths

Albert Eugene Bulson ⊕ Vice Speaker of the House of Delegates of the American Medical Association, died at his home in Fort Wayne, Ind., July 17, of carcinoma. Dr. Bulson was born in Chicago in 1867 and graduated from the Michigan State College in 1888 and Rush Medical College in 1891. He served his internship in the hospital of the University of Michigan and thereafter studied abroad. He was professor of otolaryngology in the Fort Wayne Medical College from 1892 to 1908 and since that time has been professor of ophthalmology in the Indiana University School of Medicine. He was also ophthalmologist to several hospitals. Dr. Bulson was a member of the American Academy of Ophthalmology and Otolaryngology, of the American Ophthalmological Society and of the American Board for Ophthalmological Examinations. He contributed largely to the literature of his specialty, was a collaborator in the Encyclopedia of Ophthalmology and, for twenty-two years, was editor of the *Journal of the Indiana State Medical Association*. In his editorship he was original, vigorous and an ardent supporter of the work of the Council on Pharmacy and Chemistry of the American Medical Association. In the American Medical Association he served as a member of the House of Delegates from 1916 through 1931 and was repeatedly member or chairman of important reference committees. In 1929 he was elected Vice Speaker of the House of Delegates and was reelected annually thereafter. In the Section on Ophthalmology he was secretary from 1903 to 1909, chairman during 1910 and 1911, and again secretary from 1918 to 1919. His death removes from the work and the service of the Association a loyal and valued member.

Charles Daniel Lockwood ⊕ Pasadena, Calif.; Northwestern University Medical School, Chicago, 1896; assistant in surgery at his alma mater, 1898-1900; professor of oral surgery, College of Dentistry, University of Southern California, 1900-1915; member of the Western Surgical Association and the American Association for Thoracic Surgery; member and first president of the Pacific Coast Surgical Association; fellow of the American College of Surgeons; served during the World War; on the staffs of the Pasadena Hospital, Olive View (Calif.) Sanatorium and the Los Angeles General Hospital; aged 64; died, in June, of erysipelas.

Hiram W. Austin ⊕ Senior Surgeon, U. S. Public Health Service, retired, Washington, D. C.; University of Michigan Medical School, Ann Arbor, 1875; fellow of the American College of Surgeons; delegate to International Medical congresses at Rome in 1894 and Lisbon in 1906; formerly assistant to the surgeon general and chief of the division of foreign and domestic quarantine bureau, U. S. Public Health Service; was made surgeon in the U. S. Public Health Service in 1880, senior surgeon in 1912 and retired in 1921; aged 82; died, June 20.

George McCallum Niles ⊕ Atlanta, Ga.; Bellevue Hospital Medical College, New York, 1886; at one time professor of gastro-enterology and clinical medicine, Atlanta Medical College; past president of the Chattahoochee Valley Medical Association; aged 67; author of "Pellagra, an American Problem," and "Diagnosis and Treatment of Digestive Diseases"; formerly on the staff of the Crawford W. Long Memorial Hospital, where he died, June 5, of cerebral hemorrhage and diabetes mellitus.

Archibald Wiese ⊕ Pittsburgh; Johns Hopkins University School of Medicine, Baltimore, 1920; instructor in surgery, University of Pittsburgh School of Medicine; fellow of the American College of Surgeons; member of the surgical staff of the Pittsburgh Free Dispensary; aged 38; member of the associate surgical staff of the Presbyterian Hospital, where he died, June 25, of perforated gastric ulcer.

Ulysses Grant Windell, Chicago; College of Physicians and Surgeons, Chicago, 1894; member of the Illinois State Medical Society; served during the World War; at one time medical inspector for the city board of health; formerly on the staff of the West Suburban Hospital, Oak Park, Ill.; aged 65; died, June 9, in the Edward Hines, Jr., Hospital, Hines, Ill., of bronchopneumonia.

Max Riebenack Stockton ⊕ Major, M. C., U. S. Army, San Francisco; Hahnemann Medical College of Philadelphia, 1915; fellow of the American College of Surgeons; served during the World War; appointed first lieutenant, M. C., U. S. Army, in 1917 and was promoted major in 1918; stationed at the Letterman General Hospital; aged 40; died, June 17.

Frederick W. Mann ⊕ Houlton, Maine; College of Physicians and Surgeons, Baltimore, 1892; University of Bishop College Faculty of Medicine, Montreal, Que., 1900; past presi-

dent of the Maine Medical Association; fellow of the American College of Physicians; on the staff of the Aroostock Hospital; aged 65; died, June 16.

George H. Widder, Harrisburg, Pa.; Jefferson Medical College of Philadelphia, 1891; member of the Medical Society of the State of Pennsylvania; for many years president of the city board of health; on the staff of the Harrisburg Polyclinic Hospital; aged 65; died, June 6, in the Johns Hopkins Hospital, Baltimore.

James Wilson McMurray, Marion, Ohio; Starling Medical College, Columbus, 1897; member of the Ohio State Medical Association and the Radiological Society of North America; served during the World War; formerly on the staff of the Marion City Hospital; aged 64; died, June 26, of chronic nephritis.

Frank Percival Williams ⊕ Boston; Harvard University Medical School, Boston, 1895; formerly associate professor of surgery, Tufts College Medical School; served during the World War; for many years on the staff of the Boston Dispensary; aged 62; died, June 18, at Marblehead Neck, Mass.

Leonard F. C. Wendt ⊕ Detroit; Detroit Homeopathic College, 1902; fellow of the American College of Physicians; formerly associate professor of medicine, Detroit College of Medicine and Surgery; on the staff of the Grace Hospital; aged 57; died suddenly, June 11, of coronary thrombosis.

Everett L. Sullivan ⊕ Poughkeepsie, Ark.; Hospital Medical College, Atlanta, Ga., 1909; Eclectic Medical University, Kansas City, Mo., 1915; Kansas City College of Medicine and Surgery, 1917; veteran of the Spanish-American War; aged 51; died suddenly, June 11, of cerebral hemorrhage.

Charles Randolph Hunter, Sandy Hook, Ky.; University of Louisville School of Medicine, 1917; member of the Kentucky State Medical Association; served during the World War; director of the health department of Elliott County; formerly coroner of Boyd County; aged 40; died, June 3.

Charles Leonard Mosher, Chatham, N. Y.; Cleveland University of Medicine and Surgery, 1895; member of the Medical Society of the State of New York; for many years member of the board of education of Chatham; aged 71; died, June 10, of lobar pneumonia and meningitis.

Theodore Irving Townsend ⊕ Binghamton, N. Y.; College of Physicians and Surgeons in the City of New York, 1891; member of the American Psychiatric Association; served during the World War; aged 62; died, June 22, in the Binghamton City Hospital, of myocarditis.

Andrew Webster Van Slyke, Coxsackie, N. Y.; Albany Medical College, 1869; member of the Medical Society of the State of New York; health officer; for many years member of the state board of health; aged 85; died, June 15, of heart disease and pneumonia.

Griffith Scholl Lawall ⊕ Allentown, Pa.; Maryland Medical College, Baltimore, 1912; fellow of the American College of Surgeons; secretary of the Lehigh County Medical Society; on the staff of the Sacred Heart Hospital; aged 45; died, June 25.

Richard John Morrisey, Pierre, S. D.; Barnes Medical College, St. Louis, 1908; member of the South Dakota State Medical Association; aged 47; formerly on the staff of St. Mary's Hospital, where he died, June 3, of streptococcus septicemia.

Frederick Earle Watts, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1904; served with the Canadian Army Medical Corps during the World War; aged 51; on the staff of the Christie Street Hospital, where he died, April 12.

Jesse Albert Martin, Indianapolis; Indiana University School of Medicine, Indianapolis, 1924; member of the Indiana State Medical Association; aged 34; assistant superintendent of the Indianapolis City Hospital, where he died, June 25.

Franklin Welles, Boston; College of Physicians and Surgeons, Boston, 1907; aged 65; died, May 18, in the Lawrence Memorial Hospital, Medford, Mass., following an operation for prostatic obstruction, and cardiovascular renal disease.

Abraham Lande ⊕ Elmira, N. Y.; University of Buffalo School of Medicine, 1905; served during the World War; on the staffs of the Arnot-Ogden Hospital and St. Joseph's Hospital; aged 50; died, June 20, of angina pectoris.

William T. Warriner, Crewe, Va.; College of Physicians and Surgeons, Baltimore, 1871; member of the Medical Society of Virginia; Confederate veteran; aged 88; died, June 5, in Richmond, of chronic nephritis and myocarditis.

Thomas Robert Francis ⊕ Connellsville, Pa.; College of Physicians and Surgeons, Baltimore, 1908; member and for many years president of the board of health; on the staff of the State Hospital; aged 51; died, June 13.

Carrel A. Wilson, Marble Rock, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1901; member of the Iowa State Medical Society; aged 54; died, June 3, in the Cedar Valley Hospital, Charles City.

John Leshure ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1898; on the staff of the Lutheran Hospital; aged 62; died suddenly, June 10, at his summer home in Westport, Conn.

James Patrick Fleming ⊕ Rochester, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1898; formerly on the staff of St. Mary's Hospital; aged 63; died, June 18, of heart disease and diabetes mellitus.

Clifford Parker Holt, Cambridge, Mass.; University of Vermont College of Medicine, Burlington, 1901; aged 52; died, May 28, in the Massachusetts General Hospital, Boston, of coronary sclerosis and thrombosis.

Edward Merritt Sherman, Pasadena, Calif.; Hahnemann Medical College and Hospital, Chicago, 1895; Denver College of Medicine, 1899; member of the Colorado State Medical Society; aged 66; died, June 15.

George Thomas Drennan, Pondcreek, Okla.; Medical Department, University of Tennessee, Nashville, 1899; member of the Oklahoma State Medical Association; aged 55; died, May 21, of coronary thrombosis.

Richard Hinchey ⊕ Waltham, Mass.; Harvard University Medical School, Boston, 1898; served during the World War; on the staff of the Waltham Hospital; aged 61; died suddenly, June 20, of heart disease.

Joseph L. Rose, Jellico, Tenn.; Hospital College of Medicine, Louisville, Ky., 1879; member of the Tennessee State Medical Association; aged 78; died, June 14, of uremia following a prostatectomy.

Thomas Jackson Sims, Newport News, Va.; Medical College of Virginia, Richmond, 1897; member of the Medical Society of Virginia; aged 69; died, June 9, in the Riverside Hospital, of carcinoma.

George S. Gfroerer ⊕ Oak Park, Ill.; College of Physicians and Surgeons, Chicago, 1885; aged 73; died, July 5, in the Oak Park Hospital, of carcinoma of the stomach and chronic myocarditis.

James Allen Prichard, Buchanan, Ky.; Kentucky School of Medicine, Louisville, 1892; member of the Kentucky State Medical Association; aged 64; died, June 10, of hypertension and acute nephritis.

Harry Ward Hall, Fairfax, Wash.; Dartmouth Medical School, Hanover, N. H., 1890; member of the Washington State Medical Association; aged 67; died, May 19, of heart disease and asthma.

Harry Clinton Holmes, Boston; Tufts College Medical School, Boston, 1896; Harvard University Medical School, Boston, 1899; aged 73; died, June 6, of chronic myocarditis and arteriosclerosis.

Wellington Campbell, Short Hills, N. J.; College of Physicians and Surgeons in the City of New York, 1877; aged 79; died, June 17, in the Orange (N. J.) Memorial Hospital, of pneumonia.

Thomas Joseph O'Hara, London, Ont., Canada; University of Western Ontario Medical School, London, 1929; on the staff of the Queen Alexandra Sanatorium; aged 29; died, April 23.

Frederick Joseph Driver ⊕ Macedonia, Iowa; Omaha Medical College, 1895; aged 62; died, June 6, at the University Hospital, Iowa City, of injuries received in an automobile accident.

Clark Truman Elder, Cleveland; Ohio Medical University, Columbus, 1903; member of the American Psychiatric Association; veteran of the Spanish-American War; aged 55; died, June 2.

Charles S. Dickson, Riverside, Calif.; Chicago Medical College, 1877; member of the California Medical Association; for thirty-two years county coroner; aged 83; died in May.

Robert N. Whitehead, Fulton, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1885; aged 71; died, June 10, of Parkinson's disease and pernicious anemia.

Herbert E. Colby ⊕ La Junta, Colo.; National Medical College, Chicago, 1898; on the staff of the Mennonite Hospital; aged 63; died, June 9, of streptococcic cellulitis.

Isaac N. Bowman, Upper Sandusky, Ohio; Starling Medical College, Columbus, 1882; member of the Ohio State Medical Association; aged 77; died, June 2.

Donald McKay, Flatonia, Texas; Detroit College of Medicine, 1892; member of the State Medical Association of Texas; aged 66; died, June 20, of angina pectoris.

Wilmer Cortez Box, Graceville, Fla.; Atlanta College of Physicians and Surgeons, 1907; member of the Florida Medical Association; aged 48; died, June 12.

Samuel B. Medford, Clyde, N. C.; University of Nashville (Tenn.) Medical Department, 1896; aged 68; was killed, June 4, in an automobile accident.

James Walter Andrist, San Diego, Calif.; Rush Medical College, Chicago, 1900; fellow of the American College of Surgeons; aged 57; died, May 21.

James McMun Stewart, Fremont, Ohio; Bellevue Hospital Medical College, New York, 1869; Civil War veteran; aged 90; died, June 9, of pneumonia.

Edward Lucius Finch, Plainfield, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1909; aged 87; died, June 8, of arteriosclerosis.

Harry Bauguess ✦ Detroit; Omaha Medical College, 1899; on the staff of St. Joseph's Mercy Hospital; aged 59; died, June 3, of duodenal ulcer.

Amos Wyatt Hoff, Des Moines, Iowa; Medical Department of Drake University, Des Moines, 1889; aged 77; died, June 3, in Casper, Wyo.

Glendon L. Thomas, Philadelphia; Jefferson Medical College of Philadelphia, 1869; aged 89; died, June 6, in Frankford, Pa., of heart disease.

Louis Barth ✦ Grand Rapids, Mich.; University of Wurzburg, Germany, 1881; aged 74; died, June 7, in the Blodgett Memorial Hospital.

Philip Fox ✦ Madison, Wis.; Bellevue Hospital Medical College, New York, 1863; Civil War veteran; aged 92; died, June 24, of uremia.

Christian Neils Gundesen, Calgary, Alta., Canada; McGill University Faculty of Medicine, Montreal, Que., 1923; aged 33; died, April 20.

Samuel Le Roy Ridge ✦ Langhorne, Pa.; Jefferson Medical College of Philadelphia, 1907; aged 46; died, June 24, of chronic nephritis.

William M. Morton, Pasadena, Calif.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1881; aged 80, died, June 1.

Albert M. Benson, Hartford, Wis.; Hahnemann Medical College and Hospital, Chicago, 1881; aged 76; died, June 9, of arteriosclerosis.

William A. Drane, Buena Vista, Ga.; University of Georgia Medical Department, Augusta, 1886; aged 71; died, June 6, of typhoid fever.

Anthony Frederick Zahn, Brooklyn; Bellevue Hospital Medical College, New York, 1887; aged 68; died, June 12, of heart disease.

Florence Belle Wyant Matta, Brownsville, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1903; aged 55; died, April 1.

Isaac S. Louis ✦ Chicago; Northwestern University Medical School, Chicago, 1900; aged 55; died, June 28, of cerebral hemorrhage.

Ira S. J. Crumrine, Marion, Ind.; Medical College of Indiana, Indianapolis, 1894; aged 72; died, June 18, of acute myocarditis.

William Francis Fluhrer, Mountain Dale, N. Y.; Bellevue Hospital Medical College, New York, 1870; aged 85; died, May 21.

William H. Dewey ✦ Moville, Iowa; State University of Iowa College of Medicine, Iowa City, 1884; aged 76; died, May 18.

Alex S. Cooper, Powelton, Ga.; University of Georgia Medical Department, Augusta, 1880; aged 78; died, April 22.

John A. Tipton ✦ Hillsville, Va.; Bellevue Hospital Medical College, New York, 1879; aged 75; died, April 23.

Thomas Andrew Wallace, Clayton, Ill.; National Medical University, Chicago, 1899; aged 70; died, April 30.

Harry Partridge, San Francisco; Cooper Medical College, San Francisco, 1895; aged 58; died, April 24.

Joseph Sykora, Cleveland; Cleveland Medical College, 1875; aged 78; died, June 8, of a brain cyst.

John Melvin Wallace, Lansdowne, Pa.; Cleveland Medical College, 1892; aged 67; died, May 5.

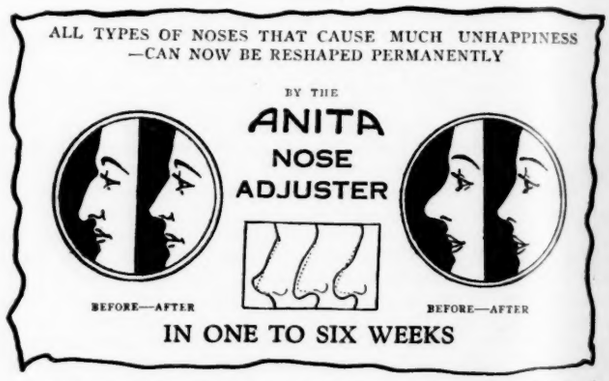
Bureau of Investigation

THE ANITA NOSE ADJUSTER AND DR. JOSEPHS NOSE CORRECTOR

The Post Office Fraud Order Against These Concerns Has Been Revoked

In this department of THE JOURNAL, March 26, 1932, there was published the case of the Post Office Department against the Anita Institute, Inc., of Newark, N. J., and Dr. Josephs, Inc., of East Orange, N. J. These were two concerns run by Mrs. Anna D. Rostow, who was president, treasurer and principal owner of both. Under these trade names, Mrs. Rostow sold devices for which it was claimed, either directly or by implication, that the shape of an adult nose could be changed by wearing such devices. It was also brought out at hearing that while in the Anita Institute advertising it was guaranteed to refund money if, after thirty-days' use, the purchaser had not benefited by the use of the device, the government declared that it was the consistent policy of the promoters to avoid living up to that promise whenever possible. Because of the fraudulent nature of the business, the Post Office Department closed the mails to both concerns on February 17, 1932.

After the issuance of the fraud order, Mrs. Rostow made application to the Post Office for its revocation. The grounds for her request were that in addition to selling the Anita Nose Adjuster and the Dr. Josephs Nose Corrector to laymen, under



Typical advertisement of the Anita Nose Adjuster used prior to the issuance of the fraud order.

the implied claim that the devices would change a snub nose into a Grecian, or a negro's nose into a Caucasian, she also sold the devices to physicians and surgeons for use by them as splints following nasal operations. Her plea was that this part of the business was legitimate and as the enforcement of the fraud order would destroy that part of the business, she asked that the order be revoked. In applying for the revocation of the fraud order, Mrs. Rostow executed an affidavit from which the following paragraphs are quoted:

"That affiant [Mrs. Anna D. Rostow] hereby accepts the finding of the said Solicitor and hereby stipulates that the said devices will not hereafter be sold through the mails (directly or indirectly) to lay users; . . ."

"Affiant hereby stipulates on behalf of herself, as principal owner, and on behalf of said Anita Institute, Inc., and Dr. Josephs, Inc., that in the event said fraud order of February 17, 1932, is revoked, the aforesaid devices will not hereafter be sold through the mails to lay users and the scheme covered by said fraud order as fully described in the memorandum of the Solicitor dated February 15, 1932, attached to said fraud order, will not be resumed either under the names covered by said fraud order or by any other name or names whatsoever;

"That in the event there should come to the Post Office Department evidence showing that said scheme has been resumed under said names or under any other names, a fraud order may be issued forthwith by the Post Office Department against the names then employed without further notice to affiant, said corporations, their successors or assigns;

"Affiant hereby further stimuplates that all orders hereafter received from lay persons for said devices will be returned with

the simple statement that the enterprise has been abandoned and that the sale of the devices has been discontinued;

"Affiant further stipulates that she will not hereafter cash any money orders from lay users drawn in favor of any of the names mentioned in said fraud order of February 17, 1932, which were received by the concerns and parties covered by said fraud order prior to the enforcement of said fraud order;

"Affiant understands that in the event this affidavit is accepted by the Post Office Department as a basis for revocation of the fraud order of February 17, 1932, such acceptance will be predicated solely upon assurance of the affiant herein that the scheme covered by the said fraud order has been absolutely discontinued and abandoned, and will not be resumed in future, and that such acceptance will not constitute either directly or indirectly an approval of the sale through the mails of the said devices to physicians, said business not having been involved in said fraud order proceeding, the details of which have not been before the Post Office Department. . . ."

Judge Horace J. Donnelly, Solicitor for the Post Office Department, in a memorandum to the Postmaster General, stated that as the fraudulent scheme against which the fraud order was made had been effectively stopped and it was believed that Mrs. Rostow and her associates would live up to the letter and spirit of the affidavit, he recommended that the fraud order be revoked with the understanding that it would be reissued in the event the terms of the affidavit were violated. It was revoked April 29, 1932.

Correspondence

MORTALITY FROM TRIBROM-ETHANOL ANESTHESIA

To the Editor:—In the Madrid letters (THE JOURNAL, June 25, p. 2303) Dr. Robert Monod of Paris is reported to have said, at the International Congress of Surgery held in Madrid, that "Lundy believes that the mortality rate from tribrom-ethanol anesthesia is 3 per thousand." This statement is incorrect. In my article "The General Anesthetic Tribrom-ethyl Alcohol: Review of the Literature on Its Rectal and Intravenous Use," I stated that "the risk of death that is intrinsic in the anesthetic is probably about 3:10,000."

I do not know whether Dr. Monod or the correspondent is responsible for this misstatement. In the transactions of the Congress as published in the *Presse médicale* there is no mention of the mortality due to tribrom-ethyl alcohol ("Avertin").

JOHN S. LUNDY, M.D., Rochester, Minn.

PAROTITIS AND MUMPS

To the Editor:—The confusion existing today in medical thought regarding secondary parotitis and "mumps" (epidemic parotitis) is persistent. Unusual and rare cases of "mumps" are reported, when in reality the cases should be diagnosed as secondary parotitis, whether postoperatively or due to a secondary infection by way of Stensen's ducts. We have demonstrated this in a recent contribution (*Tr. Sect. Obst., Gynec. & Abd. Surg.* A. M. A., 1927, p. 49). Dr. Bader reports a case of acute suppurative parotitis occurring as a complication to mumps (THE JOURNAL, Sept. 26, 1931). The case reported was that of a child, aged 3 years, who had an acute purulent otitis media of the right ear. After myringotomy of the right ear it drained profusely of a thin green yellow pus. No culture was taken; if it had been taken, the organisms found in the otitis media suppuration would have been similar to those present in the suppurating parotitis. Ten days following the myringotomy, swelling occurred at the angle of the left jaw. The history of the child being exposed to mumps is coincidental. What actually occurred, as I have previously shown, is that the mouth was invaded with bacteria from the original right-sided otitis media. The organisms ascended the left Stensen duct, with the consequent secondary suppurating parotitis. This suggests itself more clearly when the primary presence of a temperature of 103 F. is noted, with attending insalivation and dry mouth. The case here presented is a left-sided postoperative parotitis following myringotomy for a right-sided otitis media. It is not uncommon to mistake the swelling of the parotid gland for that of mumps or epidemic parotitis. The differentiation should be made to institute proper treatment. Secondary parotitis more often results in suppuration. Oral hygiene and salivary stimulation are paramount in the prevention of this condition. Every surgical operation should be preceded by careful investigation and prophylaxis of the oral cavity.

LOUIS ANTUPIT, M.D., Hartford, Conn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

IODINE IN GOITER

To the Editor:—It seems that there is more confusion than ever regarding the use and the dangers of iodine in relation to the thyroid gland. For instance, Hyman and Kessel (THE JOURNAL, June 13, 1931, p. 2014) use large doses of iodide in simple goiter, in autonomic imbalance (certainly in many instances a pre-Basedow condition), and in exophthalmic goiter. It appears that iodides are given as a routine in all these conditions, including exophthalmic goiter, even when no immediate operation is planned. They recognize no contraindications for the use of iodides, and the morphology of the gland (adenoma) in no way modifies the treatment. From their article it seems that a strict differential diagnosis between autonomic imbalance and mild thyrotoxicosis is not absolutely necessary, for the treatment of both conditions is with iodide. On the other hand, R. Schmidt (*München. med. Wchnschr.* **78:** 989 [June 12] 1931) states emphatically that iodine is one of the most dangerous of drugs. By its use, simple harmless strumas are often converted into serious toxic conditions. D. Jahn (*München. med. Wchnschr.* **78:** 744 [May 1] 1931) uses iodine only prior to operations as advised by Plummer. He considers iodine so dangerous that he warns against its use in arteriosclerosis and hypertension. Hypertension is often merely an early sign of thyrotoxicosis, and iodides merely intensify the condition. I know of no more pressing problem in therapeutics than this question. It is to be hoped that the contentions of Hyman and Kessel are correct in regard to the relative harmlessness of iodine. There are many patients with mild thyrotoxicosis in whom operation does not appear necessary. Are these patients to be given iodine in the effort to bring about an iodine remission, or is iodine to be avoided as a deadly poison? Does iodine in simple goiter offer a means of bringing about involution, or does it incur a grave risk of converting a harmless local condition into a serious general disease? Kindly omit name.

M.D., Alabama.

ANSWER.—Knowledge as to the functions of the ductless glands is in process of development and at present is incomplete and fragmentary. More is probably known of the thyroid than of other glands, but even in the case of this gland much desired information is lacking. This is particularly true in regard to the relation of thyroid activity to psychic states, to the autonomic nervous system, and to its activity in coordination with other ductless glands. The activity of the thyroid is probably of great importance in functional disturbances, the manifestations of which are constantly observed in the general practice of medicine. In addition, the thyroid undoubtedly is a factor in certain organic diseases, including cerebral, cardiovascular and gastro-intestinal disturbances. The physician is frequently at a loss to interpret all such phenomena or judge as to what part, if any, the thyroid may play under such circumstances. In the present state of our knowledge, final judgment concerning such matters must be withheld.

In evaluating the effect of therapeutic measures in the control of such clinical disturbances, a definite conception as to all factors involved must be at hand. Obviously where so many uncontrolled factors are present, as in all the groups enumerated, even greater care in the evaluation of any form of treatment should be exercised. In this field, as in no other at the present time, well known facts should be clung to; otherwise, only greater confusion than already exists will result.

In the question asked, the confusion referred to applies to the conception of the disease process. In the articles mentioned, no clear-cut distinction is made between diseases that are predominantly associated with pathologic changes in the thyroid and are controlled by therapeutic measures directed at the

thyroid gland, itself, and many other diseases in which thyroid activity and symptoms are observed but are probably only associated phenomena.

Thyroid work in the Mississippi Valley and Great Lakes region leads to the belief that iodine causes no harm and greatly relieves many manifestations of hyperthyroidism, certainly as seen in the three typical clinical groups associated with pathologic changes in the thyroid gland, namely, simple, adenomatous and hyperplastic goiter, and in the intermediate and atypical cases which fall in between these classic clinical types.

Iodine is not to be considered a cure for simple goiter; rather it has been demonstrated to be an efficient preventive. Iodine is not a cure for either adenomatous or hyperplastic goiter, yet it serves a practical purpose in materially reducing the severity of the manifestations of hyperthyroidism in many but not in all cases.

The use of iodine in other conditions superficially resembling hyperthyroidism, as in autonomic unbalance, psychic states and neuroses, and in hypertension and arteriosclerosis, is believed harmless even if of little benefit. The use of iodine in simple goiter is of decided benefit in many patients. Ill effects are rare if, indeed, they occur at all. Practically under no conditions is its use to be feared.

SUCCUS CINERARIA MARITIMA IN CATARACT

To the Editor:—Please let me know whether there has been demonstrated any value in the use of cineraria maritima for cataract.

M.D., South Carolina.

ANSWER.—Probably the best answer ever given to the question propounded was presented by the exploiters of Succus Cineraria Maritima, the Walker Pharmacal Company, when that company was given the opportunity of proving to the satisfaction of the federal courts that their preparation was a remedy for cataract. The federal food and drugs officials proceeded against the Walker Pharmacal Company, charging that Succus Cineraria Maritima was misbranded. The government chemists reported that the stuff was essentially a solution of boric acid and vegetable drug extractives in water and glycerin. The government charged that the claims that Succus Cineraria Maritima was a remedy for cataract and other opacities of the eye were "false and fraudulent," and "applied knowingly and in reckless and wanton disregard of their truth or falsity." Did the Walker Pharmacal Company attempt to defend in court the claims that it had made for years and is still making? It did not! In February, 1916, it pleaded guilty and was fined. The company has, of course, learned its lesson and no longer makes such claims on the trade package, which, unfortunately, is the only thing that the federal Food and Drugs Act can control. The claims are still made, however, in those other avenues of publicity that are not subject to the federal Food and Drugs Act. As long ago as 1911, the Council on Pharmacy and Chemistry reported on the utter worthlessness of Succus Cineraria Maritima as a cure for cataract.

WASSERMANN REACTION IN SYPHILIS AS A GUIDE TO INFECTIOUSNESS

To the Editor:—What danger is there to occupants of a home when they employ a Negro maid whose Wassermann reaction is three plus? How can you explain two cases in which the woman has a three plus Wassermann reaction and her husband's recation is negative? In her first marriage she was pregnant on two occasions but not in the second and present marriage, which is of fifteen years' standing. Is there such a thing as natural immunity against syphilis, so that a patient with constant close contact, as in married life, can still be exposed and not contract the disease? Is the Wassermann test, therefore, to be trusted or is the foregoing possible? NATHAN STEINBERG, M.D., Philadelphia.

ANSWER.—Questions of the type here asked are based on a prevalent misconception among physicians to the effect that serologic tests, whether positive or negative, have a necessary connection with the infectiousness or noninfectiousness of an individual and are of a distinctive value as guides. For example, the danger of the Negro maid to the personnel of the household is not dependent on her positive Wassermann reaction but on the stage and character of her syphilitic infection. Similarly, a woman might have a three plus Wassermann reaction for the larger part of her life and be quite incapable of transmitting the disease to her husband, no matter how intimate the contact. Syphilis tends, though not with absolute infallibility, to run a chronological course with reference to infectiousness, the disease being most easily transmissible during the first two years, which is the period of active cutaneous and mucosal lesions and of mucocutaneous relapse. It is the exception for infectiousness to persist longer than five years after the onset of the disease, though instances have been reported. The serologic tests have relatively little to do with the matter except as they tend to be positive on the appearance of infectious lesions. The test, however, may be positive indefinitely after all signs of infectiousness have disappeared and a test may be negative in the presence of active mucous lesions, transmission of the disease through the semen, and transmission through the blood, as in the infection of the fetus. The issue of infectiousness in both these cases, therefore, depends not on the serologic tests of the maid or the wife but on the status of their infections with reference to the principles mentioned. In all probability, the wife in her second marriage had an infection too old to be any longer transmissible, even though her blood test remained positive.

The question of the existence of a natural immunity against syphilis in man is as yet undetermined. There are a few examples in which repeated exposure to infectious lesions seems to have taken place without the transmission of the disease, and there is no question that this must be a not uncommon occurrence, particularly in intercourse with prostitutes. On the other hand, the factors entering into the transmission or nontransmission of the infection under these circumstances, to say nothing of the possibility of the transmission of a completely asymptomatic infection, making the exposed person a carrier without external manifestations, are too complex for general statements in regard to immunity.

The final question must be answered in the negative. The serologic tests, whether positive or negative, have little to do with the question of infectiousness. They may be positive in the presence or in the total absence of clinical infectiousness, and they may be negative and the patient yet be quite capable of transmitting the disease.

INJECTION METHOD IN VARICOSE VEINS OF ABDOMEN

To the Editor:—I have a patient who had varicose veins of each leg and also large varicose veins of the abdomen. I have by the injection method treated and cured the veins of the leg but have been afraid to inject the veins of the abdomen. Please inform me whether there is any contraindication to the injection of these veins, for I would like to cure these since they are causing a great deal of pain and some eczema in the groins. A. L. GRAFF, M.D., Cedar City, Utah.

ANSWER.—large varicose veins on the abdomen must be the result of an occlusion in the external iliac veins or even the vena cava. A history of edema of the lower extremities, following an operation, childbirth or infectious disease, should be searched for. Next, signs of patency in the deep veins should be elicited. If the obliteration of the veins of the leg has not produced or increased an edema, it may be safely assumed that the deep venous obstruction has been overcome either by recanalization or by the formation of deep collaterals. Even more important is the question whether an old infectious thrombophlebitis in the deep veins may not be activated by an injection of the superficial abdominal veins. Thus patients who have had a deep thrombophlebitis following typhoid may show a renewed flare up following injection or even slight trauma to a superficial vein. If the mechanical obstruction in the deep veins has been overcome and if a latent infection can be ruled out, an injection of these new collaterals might be attempted. The decision, however, in the individual case should not be attempted except by men of more than the average experience in the treatment of varicose veins, as the danger of producing an infected thrombus in the veins without valves, close to the vena cava, is not to be compared with that of producing a solid aseptic clot in the dilated saphenous vein.

STRAMONIUM IN ASTHMA

To the Editor:—I have a patient with bronchial asthma, a man, aged 58, for whom I prescribed jimson weed seed (stramonium) to be smoked in a pipe for relief. It usually gives relief in about five minutes. He has used it from one to six times each twenty-four hours for the past year. I want to know whether its continuous use would be injurious. I have tried epinephrine, ephedrine and ephedrine-amytal without relief. His heart is of normal size but there is a distinct mitral murmur. The blood pressure is 100 systolic and 60 diastolic. The heart was roentgenographed. Please omit name.

M.D., Arkansas.

ANSWER.—Stramonium U. S. P. or Stramonii Folia, B. P., is official in the form of the leaves and is also known as Jamestown weed, or Datura stramonium. It contains an alkaloid, hyoscyamine, physiologically identical with atrophine. Stramonium leaf is the main constituent of most asthma powders and cigarets and is usually mixed with saltpeter to aid in its combustion. Lobelia and other ingredients are sometimes added and some proprietary remedies also contain cocaine, to the ultimate detriment of their users.

Stramonium, like belladonna, acts supposedly by alleviating bronchial spasm. Particles of the burned powder may be found in the Curschmann spirals excreted with the sputum. There is no doubt of the efficiency of stramonium in relieving many mild attacks, but in severe seizures it is usually unsuccessful. The great objection to its regular use lies in the fact that the temporary relief is gained to the detriment of the bronchial mucosa, which is irritated and tends to become chronically congested: Hurst (*Brit. M. J.* **2**:839 [Nov. 9] 1929) pointed out that the users of proprietary powders suffer from a rapid increase in the frequency of their attacks. However, this does not always obtain and many sufferers seem to be able to smoke the powder for many years without apparent damage. There is probably no great harm in its indefinite use outside of its irritating effect to many. Like atropine, it is rapidly eliminated from the body, so that instances of poisoning are rare.

It might be well to suggest—if not already carried out—thorough examination of the patient, with complete protein sensitization tests. This procedure might obviate the necessity for the use of stramonium.

POSSIBLE POISONING FROM LEMONADE IN ENAMEL UTENSIL

To the Editor:—A patient of mine had grip and his wife made some lemonade in a gray agate pot and let it stand over night. The first drink immediately caused no effects but when the patient requested more the next morning the lemonade was reheated in the same pot. Within an hour the man was seized with severe abdominal cramps, nausea and diarrhea. Several hours later the same thing happened, reheating of the liquid and reappearance of the same symptoms, only more exaggerated. The agate container showed a distinct liquid level line darker gray and felt rough like fine sandpaper instead of smooth as the rest of the agate. Please inform me what chemical substance was formed and what the proper treatment should have been.

GEORGE H. JANTZEN, M.D., Queens Village, L. I.

ANSWER.—It seems reasonable to suppose that some metal substance in the glaze of the container was dissolved out by the citric acid of the lemonade and caused the illness, but from the facts as given it is impossible to say what the substance may have been. Lead is not a usual constituent of the enamel used in the United States. Zinc dissolved from "galvanized iron" containers has in a few instances been suspected of causing poisoning. The cheaper grades of cooking utensils sometimes contain antimony, and an instance of group poisoning affecting seventy persons in Great Britain in 1928 was attributed to antimony salts dissolved from a container by artificial lemonade (*Lancet* 2: 359 [Aug. 18] 1928). In such cases as described in the query, the free vomiting is usually sufficient to evacuate the stomach; the irritable stomach and bowels may be treated with suitable remedies.

DESENSITIZATION TO BACTERIAL PROTEIN

To the Editor:—Kindly explain the best method to desensitize my father against nasal sinus bacterial protein. He is a farmer, aged 54, and was in good health up to 53 years of age, except for chronic disease of the nasal sinus most of his life, which never severely incapacitated him. Suddenly at 53 he developed a severe asthma. Competent sinus surgery was immediately done with the usual prolonged convalescence. There is no history of other allergic conditions, and the only thing he is sensitive to is the streptococcus in his nose. Asthma has subsided considerably following surgery. He would be in good health if it were not for the attacks of asthma. All other foci have been ruled out. He is highly sensitive to the streptococci and, on two occasions, attempts at desensitization were made with an autogenous vaccine, but both times this made him much worse. Should I try again with less potent solutions or just what is the status of using autogenous bacterial proteins to desensitize? Suggestions on any other additional medication would be greatly appreciated. Please do not mention my name.

M.D., New York.

ANSWER.—It is evident that the injections of the auotgenous vaccine are too strong. It would be preferable to dilute the vaccine with sterilized physiologic solution of sodium chloride to a strength of 1:10, or even 1:100 if the former proves strong. The injections should be started at 0.1 cc. subcutaneously, and each dose should be about 50 per cent stronger, provided there is no marked local reaction and no aggravation of the asthma. Good results are frequently obtained in this way and increase of symptoms is quite uncommon. It is essential, of course, that aseptic precautions be maintained at all times. This is necessary because, if the vaccine should by any chance become contaminated by live organisms, each injection would tend to cause asthma.

Although positive skin tests are less frequent at the age of 53 than in childhood and youth, it is distinctly worth while to run through the whole line of pollen and protein sensitization tests on the chance of discovering some factor that might be removed. If these are negative and good results are not obtained by the autogenous vaccine, other methods of treatment may be tried. These include stock respiratory vaccines, sodium iodide intravenously, and roentgen therapy to the chest or spleen or both. As a last resort, fever treatment by diathermy may give temporary relief or it also may fail.

PLASTIC INDURATION OF PENIS

To the Editor:—I have a patient in his late fifties who is suffering with a fibrosis which involves about one third of the corpora cavernosa. Can I offer this man a cure for his condition? What is the treatment? Please omit address and name.

M.D., Mexico.

ANSWER.—The condition, variously designated as fibrous cavernositis, chronic cavernositis, plastic induration of the penis, and induratio penis plastica, is a rather rare condition, which starts as a painless lump, gradually increases in extent, soon arrives at its maximum dimensions, and remains stationary thereafter. The condition is harmless and never undergoes malignant degeneration. It remains painless, and its only symptom is interference with full erection at coitus, the organ generally becoming bent during the act. The condition must be differentiated from carcinoma of the penis.

Although spontaneous disappearance and cure has been reported, such a happy termination is exceedingly rare. In the vast majority of cases no beneficial effect has been experienced from the use of internal medication. Occasionally, when there is a syphilitic history, a good result will be obtained by the use of large doses of iodides and mercury.

Local treatments, such as external applications of iodine, mercury and iodoform, have been found useless.

The best results have been obtained by operation consisting in the removal of the mass. Corbus has reported a successful result with diathermy, and Fuhs with radium.

The following recent articles may be consulted:

Bromberg, Perry: Induration of Corpora Cavernosa, *J. Tennessee M. A.* **11**: 78 (July) 1918.

Bromberg, Perry: Fibrous Cavernositis, *South. M. J.* **14**: 480 (June) 1921.

Corbus, B. C.: Chronic Cavernositis Cured by Diathermy, *J. Urol.* **16**: 313 (Oct.) 1926.

Kretschmer, H. L., and Fister, G. M.: Plastic Induration of the Penis, *J. Urol.* **16**: 497 (Dec.) 1926.

Fuhs, H.: Ueber die therapeutischen Erfolge der Radiumstrahlen bei Induratio penis plastica, *Strahlentherapie*, Sept. 18, 1929.

HEREDITY AND HARELIP

To the Editor:—I have a patient who gave birth to a child with a harelip, about four years ago. This patient is now pregnant again. Will any form of medication or diet improve the chances of giving birth to a child free of any developmental defects? What medication and what diet would you recommend? Would viosterol be of any benefit? The parents are both healthy and free of any blood taint. Please omit name.

M.D., Pennsylvania.

ANSWER.—As harelip is due to a failure of closure of a normal cleft at the proper time, it is probable that one of a number of different agencies might be responsible for this condition. Thirty per cent of the cases occur in families in which there is an hereditary tendency to this condition. Though definite knowledge as to the cause does not exist, a severe dental disturbance or a pronounced vomiting within the first six weeks of pregnancy has been rather noticeable in the history of a number of cases without apparent hereditary taint. The mother should be kept in the best nutritional condition.

PÂTÉ DE FOIES GRAS — VEGETABLES — COD LIVER OIL

To the Editor:—I should like to have some information relative to: 1. The iron content of pâté de foies gras. 2. The use of uncooked vegetables for children of preschool age. 3. The use of strong juiced vegetables for children of preschool age. 4. The amount of cod liver oil to be given children from infancy to school age. 5. The amount of viosterol to be given to children from infancy to school age.

M.D., New York.

ANSWER.—1. A comprehensive search of various treatises and special articles in the dietetic and biochemical literature failed to reveal the iron content of pâté de foies gras. This food delicacy consists of a fine paste made from the muscles and various internal organs of numerous animals, fowls, fish and crustaceans. Into this paste is introduced and incorporated fat, goose liver and truffles; this mixture is sterilized by cooking and the end-result is of creamy consistency. Strasbourg pâté de foies gras gives the following analysis: nitrogenous substances, 14.6 per cent; fat, 33.6 per cent; carbohydrate, 2.7 per cent; ash, 3.1 per cent. Caloric value per hundred grams, 383.

2. Uncooked vegetables for children of preschool age are yet not included in the most generally accepted dietaries. The

danger of enteral infections is considerable. Cooking breaks down starches and renders digestion more complete. Aspiration of uncooked vegetable particles is not infrequent.

3. Strong juiced vegetables are generally omitted from the dietary of small children.

4. Cod liver oil may be given in daily dosages of from 8 to 12 cc. (2 to 3 drachms) from the new-born period to the age of 2 years, except in extremely warm weather. Cod liver oil may be given to children aged from 2 to 6 years in the fall, winter and early spring, in doses of from 8 to 15 cc. (2 to 4 drachms) daily.

5. Viosterol 250 D may be given to infants from the new-born period to 2 years of age in doses of from four to ten drops daily. After 2 years of age, unless used for a definite clinical need, viosterol has no rational indication.

SENSITIVITY TO LETTUCE

To the Editor:—I have a patient who has a papular eruption of his face and hands which seems to be caused when he is harvesting lettuce. It disappears when he stops handling lettuce. Can you tell me whether lettuce can cause a dermatitis, as I have never seen a case and am unable to find anything in the literature? Is there any remedy other than abstaining from handling lettuce, if it is the cause? Please omit name and town.

M.D., California.

ANSWER.—In THE JOURNAL, Jan. 9, 1932, p. 137, there appears a report of a case by Drs. Herbert J. Rinkel and Ray M. Balyeat, entitled "Occupational Dermatitis Due to Lettuce. Positive skin tests to lettuce are frequently found in patients suffering from some allergic disease. A simple test is the contact or patch test, which is performed by cleaning the back with soap and water and alcohol, and drying. Some lettuce leaves are ground up, moistened, and placed on a small square of gauze next to the skin. Over this a larger square of oiled silk is placed, held by two strips of adhesive plaster. This is kept on for about forty-eight hours. If lettuce is the cause of the eruption there should develop within that period (often a contact test becomes positive within an hour) a redness and itching eruption localized to the patch. The surrounding skin serves as a control. If the test is positive and circumstances demand it, desensitization can be tried by injecting extracts of lettuce. However, wearing rubber or light cotton gloves while harvesting lettuce should suffice to prevent the eruption.

PAIN IN STUMP AFTER AMPUTATION

To the Editor:—Can you recommend any treatment for neurofibromas when operations by two of our best surgeons have failed to relieve the symptoms? The patient has an amputation of the upper arm at the junction of the upper and middle thirds, secondary to a crushing of the arm in an automobile accident. At present there is no neuroma palpable, and the stump itself is not painful, but the patient "feels a burning pain in the fingers all the time."

ARTHUR F. HOLDING, M.D., Albany, N. Y.

ANSWER.—Pain in the remaining portion of an amputated limb is designated as painful stump when there is no obvious cause for the pain. Repeated examinations may fail to reveal neurofibromas or involvement of the nerve in scar tissue, and little relief follows repeated injections of alcohol and resection of the nerve. Burning pain, subjectively located in the fingers following amputation, may assume the characteristics of a causalgia, and because sympathetic denervation of the extremity has relieved some cases of causalgia, this operation should be considered. In the upper extremities it is possible to block the sympathetic rami with procaine hydrochloride, injected paravertebrally as a preoperative test. Should the pain be relieved following injection, cervicothoracic sympathetic ganglionectomy can be performed.

EPILATION BY DIATHERMY OR ELECTROLYSIS

To the Editor:—Please inform me whether for the removal of hair from the face diathermy is better than electrolysis. If so, what book on diathermy with the technic for removing hair do you recommend? Please omit name.

M.D., Porto Rico.

ANSWER.—The only advantage of epilation by diathermy over electrolysis is in the rapidity with which it can be done. The needle must follow the follicle just as in the older process, but one to two seconds is sufficient for the current. Whether the danger of objectionable scarring is greater by the new method has not yet been determined. The following references may be consulted:

Turrell, W. J.: The Principles of Electrotherapy, ed. 2, Oxford University Press, 1929, p. 359.

Andrews, G. C.: Diseases of the Skin, Philadelphia, W. B. Saunders Company, 1930, p. 975.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: The examination will be held in nineteen different cities in the United States and Canada, Oct. 22. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Montreal, Sept. 19. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Montreal, Sept. 17. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examinations in Parts I and II will be held at all centers where there are five or more candidates available in a Class A medical school, Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW HAMPSHIRE: Concord, Sept. 8-9. Sec., Dr. Charles Duncan, Concord.

PORTO RICO: San Juan, Sept. 6. Sec., Dr. O. Costa-Mandry, Hospital Mimiya, Santurce, San Juan, P. R.

National Board of Medical Examiners

The National Board of Medical Examiners reports that its certificate was awarded to forty-five candidates at a meeting held in Boston in April, 1932. The following colleges were represented:

College	Year Grad.
Yale University School of Medicine	(1930)
Georgetown University School of Medicine	(1929)
Johns Hopkins University School of Medicine	(1929), (1930)
Boston University School of Medicine	(1928), (1930)
Harvard University Medical School	(1924), (1928, 2), (1929, 5), (1930, 13), (1931)
Tufts College Medical School	(1930, 8)
University of Minnesota Medical School	(1930)
Albany Medical College	(1929, 2)
Columbia University College of Physicians and Surgeons	(1930)
Long Island College Hospital	(1930)
University of Virginia Department of Medicine	(1930)
McGill University Faculty of Medicine	(1929), (1930)
University of London Faculty of Medicine	(1925)

Arkansas May Report

Dr. Sam J. Allbright, secretary, State Medical Board of the Arkansas Medical Society, reports the written examination held at Little Rock, May 10-11, 1932. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Thirty-eight candidates were examined, all of whom passed. Five physicians were licensed by reciprocity with other states from Jan. 9 to May 17, 1932. The following colleges were represented:

PASSED College	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1932)	78.8, 80.3, 81, 83.3, 83.4, 83.5, 83.8, 83.8, 84.2, 84.7, 84.9, 85, 85, 85, 85.2, 85.4, 85.7, 85.8, 85.8, 85.8, 86, 86.1, 86.3, 86.6, 86.6, 86.6, 86.6, 87, 87.6, 87.8, 87.8, 88.2, 88.4, 88.8, 90, 90.3, 90.7
Tulane University of Louisiana School of Medicine	(1915)	81.6

LICENSED BY RECIPROCITY College	Year Grad.	Reciprocity with
Howard University School of Medicine	(1928)	Missouri
Atlanta School of Medicine, Georgia	(1907)	Georgia
University of Maryland School of Medicine	(1901)	N. Carolina
Medical College of the State of South Carolina	(1901)	S. Carolina
University of Nashville Medical Department	(1908)	Oklahoma

Minnesota April Report

Dr. E. J. Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, April 19-21, 1932. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Thirty-one candidates were examined, all of whom passed. Six physicians were licensed by reciprocity with other states and one physician was licensed by endorsement. The following colleges were represented:

PASSED College	Year Grad.	Per Cent
College of Medical Evangelists	(1930)	93.3
Rush Medical College	(1929) 95.2, (1932)	92.3
State University of Iowa College of Medicine	(1928)	94.6
University of Minnesota Medical School	(1931) 88,* 87.6,* 88.3,* 89,* 89.1, 89.3,* 90.6,* 91.1, 91.1,* 91.2, 91.2,* 91.6,* 91.6,* 92.2,* 92.5,* 93.2,* 93.3,* (1932) 89, 90.2, 91 *	85,*
University of Nebraska College of Medicine	(1931)	88.2
University of Cincinnati College of Medicine	(1931)	91.3

University of Tennessee College of Medicine	(1930)	90.3
University of Texas School of Med	(1928) 92.5, (1930)	90.2
University of Virginia Department of Medicine	(1930)	93.6

LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1917)	Wisconsin
Northwestern University Medical School	(1907), (1931)	Illinois
Rush Medical College	(1931)	Illinois
University of Oklahoma School of Medicine	(1925)	Illinois
University of Oregon Medical School	(1929)	Oregon

LICENSED BY ENDORSEMENT		
College	Year Grad.	Endorsement of
Harvard University Medical School	(1928)	N. B. M. Ex.

* These applicants have received their M.B. degree and will receive their M.D. degree on completion of an internship.

Book Notices

Cytology and Cellular Pathology of the Nervous System. By Various Contributors. Edited by Wilder Penfield, Professor of Neuroiogy and Neurosurgery, McGill University, Montreal. In three volumes. Fabrikold. Price, $30 per set. Pp. 1267, with 886 illustrations. New York: Paul B. Hoeber, Inc., 1912.

The fields of modern neurology and psychiatry have grown so immense that one person cannot master even the important phases pertaining to anatomy, physiology and pathology of these sciences. For this reason the editor, in preparing his system, had to resort to the cooperation of a number of investigators (anatomists, histologists, neurosurgeons, ophthalmologists and pathologists) in this country and abroad. Of the twenty-six contributors, eleven are from the United States, nine from Europe and six from Canada. The topics, though somewhat diversified, manifest some semblance of a system. Thus the first volume is given to the structure of normal and pathologic cells and nerves, seventy-six pages being devoted to the subject of nerve endings, while such topics as inflammation, structures that have some relationship to the cerebrospinal fluid, and the meninges are taken up in the other two volumes but are covered only partially. Two hundred and twenty-eight pages of the third volume are devoted to tumors, the rest of the volume being given over to discussions on malformations of the central nervous system, inflammatory cells and neuromas of the appendix. There is evidently a lack of proportion between the various contributions, and repetitions are unavoidable with so great a variety of authors. Competently as the subjects were dealt with, many views expressed are not altogether clear, and for this reason they are somewhat misleading. For instance, of the Virchow-Robin spaces, the author says "that there is a potential space outside the vascular adventitia is well established. . . . The microglial cells carry all or a part of their load to the vessels, where it may be taken up by the endothelial cells." With regard to nerve regeneration, "the phagocytosis finished, the phagocytes depart, the enormous granular corpuscles escaping through the protoplasm and membrane of Schwann." Endothelial cells are considered as "possible macrophages." Such statements as the foregoing should have been elaborated on and corroborated by proper photomicrographs and legends. The somewhat episodic character of the system may interfere with its usefulness in spite of the generally good and, in some instances, even excellent contributions. Many of these deal with subjects repeatedly recorded by the same authors elsewhere, and a beginner or a clinician may find the system too complicated.

Pseudo-Ulcus ventriculi mit besonderer Berücksichtigung der benignen Tuberkulose. Klinisch-operatives Studium an Hand von 35 bzw. 50 Pseudo-Ulcera und Ulcera peptica. Von Halldór Hansen, Privatdozent an der Universität in Reykjavik. Paper. Pp. 430. Copenhagen: Levin & Munksgaard, 1932.

Although the number of books on peptic ulcer is legion, as remarked in the preface, the author knows of no monograph devoted to the well known and important syndrome of pseudo-ulcer, and he proposes to supply this lack. His first publication in this connection was a report in 1921 on more than 2,700 ambulatory patients, half of whom were dyspeptic. It was found that the incidence of tuberculosis among the dyspeptic was double that among the nondyspeptic. Early in his practice, also, he noted the frequency of negative operative observations in patients who gave a long and typical history, quite as typical as that given by patients in whom ulcers were found. Thus it seemed desirable to illuminate the diagnosis and avert useless and dangerous operations or tedious medical management in cases of pseudo-ulcer. Although this was at first the object of his work, Hansen soon became interested in the etiology and pathogenesis of pseudo-ulcer, and it appeared that tuberculosis was an important factor. Accordingly this volume deals with (1) the difficulty of differential diagnosis between pseudo-ulcer and true ulcer, (2) the different theories of pseudo-ulcer, especially the tuberculosis theory, and (3) the relation of pseudo-ulcer to true peptic ulcer and the relation of both to tuberculosis. The material studied consisted of thirty-five patients with severe symptoms of ulcer, but no ulcer at operation, and fifty patients with surgically proved ulcer. If any reader is disposed to regard the material as small for so large a book, he should be reminded that the cases were investigated with meticulous Teutonic thoroughness. Case reports are given in full, data are analyzed, compared, correlated and tabulated exhaustively, and other writers are cited abundantly.

As to the clinical differential diagnosis between pseudo-ulcer and true ulcer, Hansen regards the following as suggestive of the former: 1. Digestive disturbance in a woman, beginning in the first or second decennium. 2. When the symptoms follow febrile or exhausting conditions. 3. Burning, superficial or neuralgic, para-epigastritic distress. 4. Irregularity of symptoms, without typical periodicity. 5. Continued vomiting, especially early in the morning or during or immediately after the meal. 6. Intolerance for milk, sugars and fats. 7. Attacks of painless diarrhea. 8. Marked nervous symptoms. 9. Anemia without occult blood; loss of weight without known cause or in spite of full diet; continued slight elevation of temperature. 10. Hypersecretion with a Rubow-Kemp coefficient below 250; retention without hyperachlorhydria; constant absence of occult blood. 11. Ulcer management ineffective.

To those who are accustomed to expect substantial aid in the differential diagnosis from an efficient roentgenologic examination, Hansen's statistics will be disappointing. Of the fifty patients with ulcer, thirty-three were examined with the roentgen ray; the niche of the ulcer was definitely demonstrated in only eleven, and what was suspected to be a niche in two others. Among the thirty-five patients with pseudo-ulcer, twenty were studied with the roentgen ray; no niche was reported in any case, but a suspected niche was seen in two and other deformities and anomalies in a third of the cases.

In reference to the cause of the symptoms in pseudo-ulcer, Hansen states that there are a great number of gastric and extragastric diseases and conditions that may give rise to the symptom complex of peptic ulcer. In his particular group, Hansen considered pulmonary tuberculosis, usually of a benign type, to be the most probable chief etiologic factor, and presents detailed arguments for this view. The typography and paper are of excellent quality, and English-speaking physicians who have difficulty in translating certain of the German textbooks will find this volume readily understandable.

New and Nonofficial Remedies, 1932, Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1932. Cloth. Price, postpaid, $1.50. Pp. 492. lvi. Chicago: American Medical Association.

Not every year can bring the announcement of such noteworthy additions to the medical armamentarium as were arsphenamine and insulin. But each year does find the manufacturers of pharmaceuticals bringing to the attention of physicians new preparations the value of which must be finally adjudged by time and usage. The busy practitioner has not the time, even if he had the ability, to pick out from among these many new preparations those which give real promise of usefulness; therefore the Council on Pharmacy and Chemistry was established to make this discrimination for him, and the preparations recognized by this distinguished body of medical and scientific men are described in this volume. In addition, each year the Council scans and revises the descriptions of individual drugs and the expository general articles of New and Nonofficial Remedies to keep it at the forefront of current medical thought.

Among the articles newly revised in the present edition are Barbital and Barbital Compounds; Fibrin Ferments and

Thromboplastic Substances; Liver and Stomach Preparations; Mercury and Mercury Compounds; and Ovary. Perhaps the most noteworthy new preparations admitted are Nupercaine-Ciba, a local anesthetic; pentobarbital sodium, a barbituric acid derivative; and Iopax, a new preparation for roentgenologic use. Noteworthy is the omission of all the ovary preparations formerly described. None of the newer standardized ovary preparations are described, though the names Theelin and Theelol are recognized. Another change of importance is the classification of articles formerly "Exempted" under the heading "Accepted but Not Described." The usual excellent index and augmented Index of Proprietaries not Included in N. N. R. appear in this edition. The book is truly indispensable to the physician or student who would keep informed on the latest advances in drug therapy.

Die Zuckerkrankheit und ihre Behandlung im Kindesalter. Von Dr. Richard Priesel, Assistent an der Universitätskinderklinik in Wien, und Dr. Richard Wagner, Privatdozent für Kinderheilkunde an der Universität Wien. Paper. Price, 15.60 marks. Pp. 211, with 9 illustrations. Leipzig: Georg Thieme, 1932.

This excellent and comprehensive monograph is the result of the authors' personal study of diabetes in children, which was carried out in the Pirquet children's clinic in Vienna, where a special ward was devoted to the study and care of these children. The authors have dedicated this book to the memory of their distinguished teacher, Clemens Pirquet. The introductory chapters contain excellent material on the etiology, racial distribution, hereditary influences and general symptomatology of diabetes in children. The relationship of childhood diabetes to tuberculosis, circulatory diseases, renal disturbances and the sexual development of the child are carefully considered, as are diabetes of infancy and the differential diagnosis of the glycosurias. A complete chapter on the metabolism of diabetes and a discussion of the acetone bodies and the mechanism of the action of insulin are convincing evidences of the brilliant understanding the authors have of their subject matter. Clear discussions are given on the calculation of diets, and sample diets, on the technic of insulin administration, and on the occurrence and management of hypoglycemia, diabetic coma and infection, so that the practicing physician in reading these chapters can obtain applicable knowledge in the handling and treatment of his own small patients. Finally the home care, prognosis and outcome of juvenile diabetes are discussed in detail, and a complete bibliography is appended. The authors are to be congratulated because they have combined in a superbly written monograph the most detailed and critical physiologic and pathologic discussion of the metabolic mechanisms and dysfunctions of the diabetic child, together with a concise and easily applicable minute discussion of the treatment and care of the juvenile diabetic patient gained from careful personal knowledge and study.

The Culture of the Abdomen: The Cure of Obesity and Constipation. By F. A. Hornibrook. Preface by Sir William Arbuthnot Lane, Bart., C.B., M.S., Consulting Surgeon to Guy's Hospital. Seventh edition. Cloth. Price, $2. Pp. 94, with 42 illustrations. Garden City: Doubleday, Doran & Company, Inc., 1932.

This is a new printing of a volume that has had considerable vogue since 1924. Its author is convinced that the muscles of the abdomen do not get enough exercise and that proper activities of the thorax and musculature will control posture, flatfoot, constipation and similar disturbances. He describes these exercises in detail. The publisher presents statements by R. Tait McKenzie, Sir William Arbuthnot Lane and Arnold Bennett to prove that these exercises will reduce weight and make people feel better.

Les tumeurs du quatrième ventricule: Étude anatomoclinique et thérapeutique. Par Jean Lereboullet. Travail de la clinique neurologique de la Salpêtrière. Professeur: M. G. Guillain. Paper. Price, 65 francs. Pp. 431, with illustrations. Paris: J. B. Baillière & Fils, 1932.

This sober and exhaustive study of tumors in a limited region of the intracranial cavity can be highly recommended to the attention of any one interested in the subject. The author is perfectly familiar with the recent work concerning intracranial tumors—their pathology, symptomatology, diagnosis and treatment—and applies this knowledge judiciously to his limited subject. His critical remarks are just, save perhaps when he attempts to explain the predominance of cerebellar symptoms on a phylogenic basis. This predominance can be much more simply explained by the fact that he has excluded, by definition, from his group of tumors of the fourth ventricle those which arise from the bulb and project into the fourth ventricle and has included, also by definition, the medulloblastoma, which is primarily a tumor of the vermis of the cerebellum. No such predominance of cerebellar over bulbar symptoms is evident in the case of the papilloma, which is *par excellence* a tumor neither of the cerebellum nor of the bulb.

Wheeler and Jack's Handbook of Medicine. Revised by John Henderson, M.D., F.R.F.P., Physician, Glasgow Royal Infirmary. Ninth edition. Fabrikoid. Price, $4. Pp. 654. New York: William Wood & Company; Edinburgh: E. & S. Livingstone, 1932.

The original plan of the authors to prepare a handbook of medicine has been preserved throughout the various editions of this work. The present edition is still a handy pocket size volume with a flexible back. It is a careful revision of the previous edition. Some sections have been rewritten; for example, those on vitamins, pernicious anemia, epidemic encephalitis and arthritis deformans. There have been added sections on syphilis of the stomach, hepatic efficiency, cholecystography, acute febrile poliomyelitis, and some of the neuroses. Even so, the size of the volume has not been much increased. Dr. Jack, who made all the previous revisions from the second to the eighth, passed away in 1927, and Dr. Henderson alone has revised the present edition.

Clinical Lectures on Psychological Medicine. By Henry Yellowlees, O.B.E., M.D., F.R.F.P.S., Physician for Psychological Medicine, St. Thomas's Hospital, London. Cloth. Pp. 310. London: J. & A. Churchill, 1932.

This is a book of lectures by a practical man of large experience with the study and handling of neurotic and insane patients. He says that his lectures "are an attempt at a return to that clinical approach which is the foundation of all sound medical teaching and is nowhere more essential than in psychiatry." The elements of psychotherapy are discussed. There are lectures on syndromes, such as states of depression, elation, stupor and confusion. The principal psychoses and psychoneuroses are described and contrasted. Neurotics, the author says, are made, not born, and the causes of the neuroses are laid in upbringing, environment, and the effects of external circumstance. Psychotics, on the other hand, are born, not made, and "sufferers from the typical psychoses have been ordained to them, as it were, from the foundation of the world." The test of insight is considered crucial: Every sufferer from a neurosis has insight, that from a psychosis has not. The author does not admit that even the patient with melancholia has insight. He may admit being ill but wrongly regards his illness as due to his own failure or wrongdoing. Four neuroses are recognized: neurasthenia, which is rare and which is abnormal fatigability; anxiety states; obsessional states or compulsion neurosis; hysteria. The author acknowledges a great debt to Freud, but he is not satisfied with freudian psychoanalysis and says that psychology is waiting for something better. Altogether, the book is well conceived and well written and repays reading even if one may disagree with the author here and there.

The Athlete in the Making. By Jesse Feiring Williams, M.D., Professor of Physical Education at Teachers College, Columbia University, and Eugene White Nixon, M.A., Professor of Physical Education at Pomona College, Claremont, California. Cloth. Price, $2.50. Pp. 258, with illustrations. Philadelphia & London: W. B. Saunders Company, 1932.

The authors have presented clearly the elements of athletic success; namely, coordination, speed, endurance, strength, intelligence and spirit. These combined elements make for athletic skill. The second part of the book discusses the factors involved in the training and conditioning of athletes and the special requisites necessary for the training in each of the elements discussed in the early chapters. There is a chapter on diet, another on training rules. There is a brief chapter on injuries in athletics, with especial reference to prevention. The fundamental principles described in the early chapters are applied to various sports, such as football, golf, baseball, track, tennis and swimming. The authors do not go into the details of the form and technic in sports. This book is a welcome contribution and should be beneficial to coaches, athletic directors and athletes as well as physicians.

Les troubles du sommeil: Hypersomnies, insomnies, parasomnies. Par Henri Roger, professeur de clinique des maladies nerveuses à la Faculté de médecine de Marseille. Paper. Price, 20 francs. Pp. 206. Paris: Masson & Cie, 1932.

In this little book, prepared for the guidance of the practicing physician, the author discusses the pathology of sleep rather than its physiology. Various abnormalities of sleep are taken up from the standpoint of their probable etiology, and appropriate treatment is suggested. The handling of the subject is somewhat involved because the writer separates sleep and its disturbances into three artificial elements, vegetative, cerebrospinal and psychic. The volume also suffers from the absence of a bibliography.

Manual of Bacteriology. By Robert Muir, M.A., M.D., Sc.D., Professor of Pathology, University of Glasgow, and the late James Ritchie, M.A., M.D., F.R.C.P. Revised by Carl H. Browning, M.D., D.P.H., F.R.S., Gardiner Professor of Bacteriology, University of Glasgow, and Thomas J. Mackie, M.D., D.P.H., Irvine Professor of Bacteriology, University of Edinburgh. Ninth edition. Cloth. Price, $4.75. Pp. 866, with 237 illustrations. New York: Oxford University Press, 1932.

The general characteristics of this book are well known to the medical profession. It has been used as a textbook in some schools for a long time. Practically every section has been revised and some have been rewritten, especially those on streptococci and the filter passing viruses. Other sections have been condensed, leaving out material that is now out of date. The bacteriologic literature has become so great that to incorporate all of the important papers in a book of this class would be impossible. The bibliography therefore has been reduced and the size of the volume remains about the same.

Traité de physiologie, normale et pathologique. Publié sous la direction de G.-H. Roger, professeur honoraire de physiologie à la Faculté de médecine de Paris, et Léon Binet, professeur de physiologie à la Faculté de médecine de Paris. **Tome II: Alimentation et digestion.** Par MM. E. Bardier, G. Battez, et autres. Cloth. Price, 100 francs. Pp. 565, with 31 illustrations. Paris: Masson & Cie, 1931.

This volume deals with the physiology of the alimentary tract, including chapters on food, hunger and thirst. The references to the literature are scanty. The paragraphs on the pathologic physiology of the digestive tract are rather superficial for a volume of this size. More and better illustrations would have enhanced the value of the book. The informed and critical reader finishes the volume with the impression that it is just one more textbook on digestion, but neither in content nor in form is it a significant contribution to physiology and medicine.

Know Your Child. By Louis Monash, Principal of Public School 33, The Bronx, New York City. With a foreword by Dr. John H. Finley. Cloth. Price, $2. Pp. 246. New York: Whittlesey House, McGraw-Hill Book Company, Inc., 1931.

There have been many books written in the last decade concerning the building of character and the control of the child's behavior in the home. Only through frank dealing with children can parents hope to retain their respect and confidence. Parents must be willing to admit their mistakes to the child and to regard their children with a scientific and sympathetic attitude. This book has been written for the purpose of teaching parents how to aid the child in making personal and social adjustments and emphasizes especially the building of confidence—of the parent in the child and of the children in their elders. The incidents related are typical and make the book interesting and practical. Perusal of the material should aid parents in overcoming and preventing many bad habits and behavior problems in their children.

Introduction à la chirurgie nerveuse. Par E. E. Lauwers. Préface du Pr. Georges Guillain. Paper. Price, 25 francs. Pp. 121. Paris: Masson & Cie, 1932.

The general surgeon is much alarmed when he sees that the surgery of the nervous system is slowly slipping through his fingers. This little book has evidently been written in a spirit of revolt against this tendency. The author seems to think that he has written down within its brief pages all the knowledge that is necessary to qualify one to operate on the nervous system. The writer of the preface seems to agree with him; but the information contained in this little book does not approach either in extent or in accuracy the information which one would expect the ordinary medical student to possess who has passed through his courses concerning surgery of the nervous system. The discussion of the physiology of the brain is rudimentary. The treatment of tumors of the brain is embryonic. Certainly if the general surgeon wished to retain the surgery of the nervous system he will have to present better qualifications than is evident in this elementary treatise.

Primary Carcinoma of the Lung: Bronchiogenic Cancer. A Clinical and Pathological Study. In two parts. By B. M. Fried, M.D., Peter Bent Brigham Hospital, Boston. Cloth. Price, $5. Pp. 247, with 95 illustrations. Baltimore: Williams & Wilkins Company, 1932.

This monograph is divided into two parts. The first deals with incidence, etiology, histogenesis, classification, metastases and duration. The second part discusses diagnosis, based on history, physical observations, laboratory examination of sputum, pleural exudate and tissue removed during bronchoscopic examination, and roentgen examination. A final chapter is devoted to detailed case reports with comments. It is well illustrated. A bibliography and an index are appended. The volume presents systematically much valuable information on a subject of growing clinical interest and importance.

Körperschmerzen und ihre Differentialdiagnostik. Von Hofrat Prof. Dr. Norbert Ortner. Fourth edition. Paper. Price, 30 marks. Pp. 726. Berlin: Urban & Schwarzenberg, 1931.

This edition of Ortner's book on pain is a masterful treatise on differential diagnosis. The author repeatedly calls on his own wealthy clinical experience and that of his teachers and colleagues throughout the famous European clinics to paint realistic pictures of the varied manifestations of pain throughout the body. The book is written in interesting style and is actually an encyclopedia, in addition to its many other virtues. It is highly recommended to any one wishing to benefit by the tremendous experience of the writer.

A Textbook of Bacteriology. By Kenneth L. Burdon, Sc.M., Ph.D., Instructor of Bacteriology, Immunology and Public Health, Washington University School of Medicine and School of Nursing, St. Louis. Fabrikoid. Price, $2.75. Pp. 542, with 89 illustrations. New York: Macmillan Company, 1932.

This book is designed primarily for the instruction of nurses, although it might be used for general college students. It is hardly complete enough for instruction in medical schools. The approach to the subject of bacteriology is the usual historical one, and the author has done a distinctly commendable piece of work. The greater part of the volume is general in character, with comparatively brief descriptions of pathogenic micro-organisms. This method of presentation is far better than to attempt to present detailed descriptions of bacterial species to nurses. The chapter dealing with practical sterilization and operating room procedures is an illustration of material that should be of benefit to nurses. To be sure, there might be some difference of opinion as to whether or not the gown and mask should be removed before or after washing the hands, or whether a mask should be used at all. On the whole, the methods described represent good practice. The section dealing with infection and resistance contains little theoretical material and is readable. The book can be cordially recommended. The printing and illustrations are excellent.

Krankheitserreger und Gewebsbefunde bei multipler Sklerose: Vergleichend-histologisch-parasitologische Untersuchungen bei multipler Sklerose und anderen Spirochätosen. Von Professor Dr. Gabriel Steiner. Paper. Price, 24 marks. Pp. 196, with 71 illustrations. Berlin: Julius Springer, 1931.

The author has long attempted to place multiple sclerosis on the basis of a spirochetal disease. He has described a short, thick spirochete in sections by the silver method and attained some success at transmission of this organism to the experimental animal. His experimental work has not been confirmed, although such men as Hideyo Noguchi have attempted it. Most histopathologists consider that the spirochetes in sections which Steiner describes are artefacts produced by the silver or fragmented pieces of axis cylinders. In the present volume the author attempts to show a similarity of the histology of dementia paralytica, with its large areas of perivascular demyelinization, with that of multiple sclerosis, and by such procedure strengthen his conception that multiple sclerosis is a spirochetal disease. The work adds nothing that his previous publications have not brought out, and this monograph is interesting only to the worker in the special field.

Medicolegal

Prescribing Exercises for Eye Muscles as "Treatment of the Sick"

(Nickell v. State (Wis.), 238 N. W. 508)

The American Society for the Conservation of Vision maintained offices in Milwaukee, with the defendant, Nickell, as its manager. A Miss Hodge and a Mrs. Nelson went to those offices, and there, in Nickell's presence, the office girl said "This is Dr. Nickell and he'll take care of you." On Nickell's invitation, they went with him into another room, where he examined their eyes, using an ophthalmoscope and having them look through various lenses at lettered charts. He told each of them that she had astigmatism but that after the treatments were over she would need no glasses. Later he gave each of them a chart with dots and lettering and told them to take those charts home and to look at the dots from different angles and otherwise to exercise their eyes daily. Nickell was charged with unlawfully treating the sick without having a certificate of registration in the basic sciences and with unlawfully using or assuming the title "Doctor." He was convicted and appealed to the Supreme Court of Wisconsin.

It was admitted that Nickell was not licensed in Wisconsin to practice medicine or optometry and that he had no certificate of registration under the basic science act. There was ample evidence, said the Supreme Court, to establish that Nickell had for compensation unlawfully treated the sick. The astigmatism and headaches of Miss Hodge and Mrs. Nelson and the partial paralysis of one Campbell, another patient whom he treated, constituted in each case a disease, as that term is defined by the statutes. The manner in which he examined their eyes, treated, prescribed and advised treatment, and held out that by such treatment their disease conditions, including their sight, would be remedied, clearly constituted treating the sick within the meaning of the law. The attending circumstances and the manner in which all of this was done were such that it would be ridiculous to consider the treatments mere ocular calisthenics on a par with such exercises as are customarily prescribed for ordinary physical culture purposes.

When Nickell was pointed out by the office girl to Miss Hodge and Mrs. Nelson as "Dr. Nickell" he did not say or do anything to dispel the impression conveyed that he was a doctor, but he examined and treated them. On another occasion, when he was asked whether he was "Dr." Nickell, he replied "Yes, sir, I am." Moreover, on hearing the title "doctor" falsely applied to himself by a subordinate employee, he responded to it, adopting and taking that title upon himself by affecting and pretending to have the knowledge, skill and legal privilege to treat the sick, which that title implied under the circumstances.

The convictions in the court below of unlawfully treating the sick without having a certificate of registration in the basic sciences and unlawfully using or assuming the title "Dr." were affirmed.

Testimony of Medical Practitioner as to Correctness of Osteopath's Diagnosis.—One of the plaintiff's breasts had been removed on account of cancer. Later, having pains in her right leg and hip, she consulted the defendant-osteopath. He treated her for rheumatism or arthritis of the hip joint and told her that she had adhesions in her back. In the course of treatment, he bent his patient's knee firmly upward toward her body, pressed his weight on it and twisted it, and the femur fractured. Roentgenograms taken after the fracture showed a carcinoma in the broken femur. The patient sued for damages from malpractice and recovered judgment. The defendant-osteopath appealed to the Supreme Court of Nebraska, claiming that the trial court erred in permitting medical witnesses to testify that the osteopathic defendant's diagnosis was erroneous. But, said the Supreme Court, it has been held that a physician of one school may testify as to the correctness of the diagnosis of a case which a physician of another school treated, where the diagnosis is the same in all schools of medicine, or where a condition exists that should be recognized by any physician. A physician of any school, on learning that an entire breast had been removed "for lumps," would suspect that there had been a cancer and would know that a cancer might develop in the bones of such a patient. He would know, too, that if a cancer did develop in the bones of a patient, the bones would be weakened and could not bear the pressure of twisting and manipulation that it might be possible to employ on the bones of another patient. To make a skilful and careful diagnosis of the trouble from which the patient is suffering is one of the fundamental duties of a physician. If he fails in that regard and damages result, he is answerable for them.—*Cook v. Moats (Neb.), 238 N. W. 529.*

Malpractice: Broken Hypodermic Needle and Res Ipsa Loquitur.—The fact that the point of a needle being used by a dentist to inject novocaine into a patient's gum breaks off in the gum is not of itself evidence of negligence on the part of the dentist. The defendant-dentist did not manufacture the needle which broke. There was nothing in the evidence tending to indicate that there was any defect in the needle or that if any defect existed the defect could have been discovered by the most rigid examination. There was no evidence that the needle was used in a careless or negligent manner or by an unskilled or incompetent dentist. Indeed, the evidence showed that the defendant-dentist discovered the broken needle and undertook to remove it with all facilities available to him at the time. To hold that the doctrine of res ipsa loquitur applied to these facts, says the Supreme Court of North Carolina, would be for all practical purposes to impose the liability of an insurer on a dentist, physician or surgeon, and no court has ever gone that far.—*Smith v. McClung (N. C.), 161 S. E. 91.*

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, French Lick, Indiana, Sept. 12-14. Dr. Magnus A. Tate, 19 West Seventh Street, Cincinnati, Secretary.

American Congress of Physical Therapy, New York, Sept. 6-10. Dr. F. B. Balmer, 185 North Wabash Avenue, Chicago, Secretary.

American Hospital Association, Detroit, Sept. 12-16. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

Colorado State Medical Society, Estes Park, Sept. 8-10. Mr. Harvey T. Sethman, 227 16th Street, Denver, Executive Secretary.

Michigan State Medical Society, Kalamazoo, Sept. 13-15. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

Utah State Medical Association, Ogden, Sept. 15-17. Dr. Leland R. Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.

Washington State Medical Association, Tacoma, Sept. 12-14. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 14-16. Mr. J. G. Crownhart, 119 East Washington Avenue, Madison, Secretary.

MISSOURI STATE MEDICAL ASSOCIATION

Seventy-Fifth Annual Meeting, Held in Jefferson City, May 23-26, 1932.

Correction of Prostatic Obstructions by Means of the Resectoscope

DR. NELSE F. OCKERBLAD, Kansas City: The history of all transurethral operations goes back to George James Guthrie, who in 1832 devised an operation intended to incise prostatic bars. The history is brought up to the time of Young's punch and of the Caulk cautery punch. There is a wide difference between the punch operation, which removed only tiny bits of tissue, for the most part in a blind fashion, and the present resectoscope, which removes tissue in a clean, bloodless manner under full vision. Thirty cases are cited with a complete study to show the results and to find out the shortcomings as well as the good points of this new method.

Colostomy

DR. WARREN R. RAINEY, St. Louis: Sigmoid colostomy is performed only as a life-saving measure or a preliminary step for the removal of the rectum. It should be recommended in all types of anal rectal lesions in which the anal sphincter has been destroyed and there is complete incontinence, and likewise in benign stricture of the rectum and inoperable rectal fistula. There is frequent opposition to the performance of this operation from members of the medical profession. So far as

the colostomy operation is concerned, it is well to admit that no type of operation has been devised that will give the patient any assurance that sphincteric control can be developed. The patient, on the other hand, can so readily control the habit of defecation and the required toilet that the emptying of the bowel through the abdominal stoma is not looked on as any distressing handicap. I feel so strongly on this subject that I recommend without hesitation the making of the abdominal stoma in those cases of destruction of the anorectal region in which there is loss of sphincter control, in an inoperable type of stricture, in ulcerative colitis, and in certain of the cases in which the original Kraske operation has been done. The patient is instructed, on rising in the morning, immediately to force a movement of the bowels. Some patients have no difficulty in stimulating a movement by a little abdominal straining. Otherwise, a small catheter attached to the tube and the irrigating can is introduced into the stoma and warm tap water allowed to run until the urge is felt. With a little normal straining the entire bowel is emptied into a kidney shaped basin, held directly under the stoma. Most patients quickly discard the rubber bags and are far better satisfied with a firm binder and pad. By following a plain diet and ordinary discretion, the patient is able for the remainder of the day to engage in such routine occupations, social and recreational, as he sees fit to follow.

Incipient Cataract

DR. M. HAYWARD POST, St. Louis: A compilation has been made concerning the age incidence of cataract in 504 cases, those cases being considered positive which showed definite lens changes on routine ophthalmoscopic examination. The various methods proposed from antiquity up to the present time are reviewed and the conclusion is drawn that accurate refraction, combined with good hygiene and care in the use of the eyes, appears to have given the most satisfactory results, but that medical treatment often enables the physician to keep in closer contact with the patient than would otherwise be possible. Close contact is of vital importance in order to control the hygiene and to prevent the occurrence of various infections of the lids and adnexa, which might interfere with the performance of an operation, should one become necessary at a later date.

Retinal Detachment Subsequent to Proliferative Changes

DRS. EMMETT P. NORTH and VINCENT L. JONES, St. Louis: A child, aged 10 years, was blind in one eye as the result of total detachment of the retina caused by a hyperplastic degeneration of the pigment epithelium. The blind eye was discovered in the course of a routine examination for a minor eye ailment. A relatively small malignant neoplasm may be hidden by the retinal detachment it has produced. The presence of connective tissue, cholestrin crystals and bone marked the process as long standing and, because the proliferated unpigmented and pigmented cells from the pigment epithelial layer and the connective tissue derived from these cells, lay anteriorly and centrally within the folds of the detached retina and posteriorly near the optic nerve adherent to the posterior surface of the retina, the hyperplasia of the pigmented epithelium must have preceded the retinal detachment. The opaque striae observed by transillumination were probably caused by connective tissue masses.

Cancer of the Breast Seven Years After Operation

DR. JOHN H. OGILVIE, Kansas City: From a series of cases of cancer of the breast in the clinic of Dr. Jabez N. Jackson, 129 cases were selected running from 1909 to 1924. Of the 129 patients, 109 were married women and 20 were single women. The average age of the total group was 44.4 years; 11 per cent of the patients were under 30 years of age, the range of ages being from 17 to 78. The average duration of the disease as denoted by a mass in the breast was 2.4 years, the range in this instance being from 7 days to 8 years. The average age was increased considerably by a number of cases in the 7 and 8 year period. In 62 instances the mass was in the right breast; in 67 cases it was in the left breast. In 72 cases, skin fixation was definitely mentioned as a diagnostic feature; in 24 cases, no mention of this feature was made; in 30 cases the skin was said to have no fixation; in 3 cases nothing definite was said about the skin. Among the 72 cases in which skin fixation was present, all proved to be carcinoma except 3; 2 of the latter proved to be sarcoma, 1 of the inflammatory type and 1 a dermoid with superimposed carcinoma. In the 129 cases, pain was mentioned only seven times. In 5 cases there was a history of a bloody discharge from the nipple; in 2 there were sinuses in the breast; in 4 there was malignancy of the ductal type, while 1 showed a sarcoma superimposed on a dermoid.

Twenty-seven patients had definite involvement of the axillary structures diagnosed preceding operation; 36 had axillary metastases disclosed at operation; 14 showed microscopic metastases not suspected at operation. Fifty-two cases showed no glandular involvement. Two patients in the group had a mass in the breast for seven years and showed no glandular involvement. In 35 cases it was thought that the chances for a complete cure were good.

Radical amputation was performed in all but eight cases, and in these eight only local amputation was done. Twenty-two amputations were done by the flap method but in all the rest the regular radical amputation was done. In those cases in which the flap method was done, the mass was so situated as to allow its use without endangering the end-result.

There were two deaths in 129 operative procedures; one complicated by thyrotoxicosis and pregnancy; the other patient died of a postoperative pneumonia with lung abscess. The pathologic features were carcinoma 97, medullary carcinoma 4, scirrhous carcinoma 16, sarcoma 5, and doubtful type (carcinoma) 7. The recurrences ranged from one month to thirteen years and eight months. The recurrences appear to have occurred in the greater proportion of cases in two general periods; viz., one around the eleven-month period and a later period of from three to five years. The average was slightly more than two years. The recurrences were in the lungs in 41 per cent, bones 28 per cent, scar 5 per cent, supraclavicular nodes 10 per cent and nervous system 8 per cent. No patients with sarcoma are alive; no patient with medullary carcinoma is alive. Of the 52 patients showing no metastases, 37 are alive. Of the 77 showing metastases or those who were adjudged poor risks for radical cure, 24 are alive and well. This is a percentage of 31.17 in the latter group.

No patients with sarcoma of the breast in this series nor of medullary carcinoma are alive seven years after operation. The chance of cure by radical operation is decreased from two thirds of the cases to less than one third when the disease has ceased to be local. Sixty-one women out of a series of 129 with malignant disease of the breasts are alive seven years after the operation.

Roentgen Examination of the Breast

DR. IRA H. LOCKWOOD, Kansas City: The mammary gland lends itself readily to roentgen examination. Projection of the gland is made with a minimum of distortion and very little imposition of other structures. On a properly executed roentgenogram there is a smooth, narrow area marking the separation of the breast from the pectoral muscles. The structures appear as a pyramid with the apex at the nipple, and at the base there is a more or less homogeneous mass, which represents the parenchyma. There are delicate strands, which converge into a narrow band and pass to the nipple. The remainder of the gland presents a relatively nonopaque area and represents the stroma of fat and connective tissue.

Benign tumors of the breast are made up in a general way of tissue that more or less closely resembles the normal. The tumors are, as a rule, definitely circumscribed and sharply outlined. The density is homogeneous and the connective tissue stroma is shown through this opacity. The differentiation between a cyst and a solid tumor can usually be made by the degree of density, a cyst being less dense than a solid tumor and more homogeneous. Benign tumors push aside the fatty tissue and other constituents of the breast. They are localized growths with a distinct continuity of the capsule and no evidence of invasion or infiltration.

Malignant tumors of the breast are recognized as a dense mass of tissue with distortion, scarring, puckering and infiltration, and in the more advanced cases a band extends from the nipple to the tumor mass. There is an irregularity of the

pyramid and a loss of the normal linear striations and feathery strands of dense, fibrous tissue involving the ducts and lobules with extension along the lymphatics and enlargement of the lymph nodes and loss of the normal muscle planes.

Hormone Control of Changes in the Endometrium During the Menstrual Cycle

EDGAR ALLEN, PH.D., Columbia: The changes that occur in the primate endometrium during the menstrual cycle have now been duplicated experimentally in ovariectomized monkeys by injections of ovarian hormones. It is possible, therefore, to revise the old classification of these changes, which was based entirely on histologic studies before the hormone control had been demonstrated. There are at least two hormones concerned: theelin, which reaches its highest concentration in the follicles but which is also found in the human corpus luteum, and progestin (Corner) or corporin (Hisaw) from the corpus luteum. Action of theelin is essential, for the corpus luteum hormone is ineffective when used alone. Therefore, the action of progestin or corporin is distinctly supplementary to that of theelin.

Experiments with ovarian follicular hormone (theelin, estrin, folliculin, progynon) in laboratory rodents and monkeys have demonstrated that its principal action is to induce growth (hyperplasia) in the tissues of the genital tract, which is followed by the beginning of secretion of the glandular tissues. Theelin also influences the rate and amplitude of contraction of uterine and tubal musculature. The follicular hormone, therefore, is responsible for the wave of growth which periodically runs through the whole genital tract and the mammary glands. But theelin alone fails to give a complete reaction in the endometrium. Progestin or corporin from the corpus luteum continues the endocrine action and produces the tortuous and twisted uterine glands, the swollen cells and edematous stroma of the typical premenstrual endometrium. Paralleling this transformation, additional hypertrophy of the mammary glands occurs. These reactions, therefore, depend on one-two reactions of the theelin and progestin or corporin.

Whether or not ovulation occurs, menstruation may appear at the expected time. Typical menstrual periods follow (1) removal of the ovaries, (2) injury of large follicles and (3) removal of corpora lutea. Similarly, experimental menstruation periods have followed several days after the cessation of long series of injections of follicular hormone. Menstrual bleeding usually does not occur during the injections but begins (after a latent period of a few days) when they are stopped. From these experiments, menstruation is clearly degenerative in significance and follows a growth period resulting from the action of theelin. Although the corpus luteum hormones are necessary for the premenstrual transformation of the endometrium, they are not necessary for the process of menstruation itself.

On the basis of its hormone control, the endometrial cycle may be divided into three periods: (1) postmenstrual, under the influence of theelin; (2) premenstrual, due to action of theelin and progestin or corporin together, and (3) menstrual, due primarily to decreased amounts of theelin.

Experimental Transplantation of the Pancreas Into the Stomach

DRS. A. M. TRIPODI and CHARLES F. SHERWIN, St. Louis: We believe that the cases reported here represent the first successful experiments to anastomose the pancreas into the stomach and establish its normal functions. These experiments were performed in the department of surgery of the St. Louis University School of Medicine.

In the first series of cases the cephalic end of the severed tail of the pancreas was implanted into the lumen of the stomach without disturbing the duct connections in the duodenum. Healing was seemingly by first intention, with no evidence of duct connection between the pancreatic duct and stomach. This may be explained by the secretion following the normal duct system and not creating sufficient back pressure to hold the severed end open into the stomach.

In the second series the head of the pancreas was excised and the cephalic end of the severed neck was implanted into the lumen of the stomach without further separation of its ducts from the duodenum. Here no connection of the duct system with the stomach could be observed, probably for the same physical reason as in the first series.

In the third series the severed end of the head of the pancreas was implanted into the lumen of the stomach through its wall. Here the attempt was made to cut through all duct connections to the duodenum. Two specimens in which the head end of the pancreas was united to the stomach were cut in serial sections. In both specimens the pancreatic tissue attached to the stomach wall was normal and a large duct was discovered just under the gastric mucosa. In one specimen the duct connection to the surface could not be definitely followed, although there were indications of a small duct system continuous with the gastric mucosa. The second specimen demonstrated a large pancreatic duct, in which the lumen was continuous with that of the stomach and the continuity of the mucous membrane of the stomach with that of the duct was easily demonstrable. There was no evidence of any pathologic reaction within the stomach wall or mucosa. Analysis of stomach contents revealed the presence of trypsin. Blood sugar was a little lower than normal and the urine examination was always negative for sugar. The free anastomosis about the pancreas seems to take care of the pancreatic tissue, no matter which part is implanted, as this is borne out by the excellent preservation of the pancreatic substance both in gross and in microscopic specimens. The operative technic apparently effected a firm anastomosis of the pancreas and stomach without leakage of either pancreatic juice or gastric contents, still preserving the internal and external secretory functions of the gland. In these instances the animals gained in weight and remained in good health. The establishment of the possible surgical connection between the pancreas and stomach opens up an extensive research program for both surgical and physiologic investigators.

Syphilis in Compensation Claims as Viewed by the Missouri Workmen's Compensation Commission

JAY J. JAMES, Kansas City: The Missouri Workmen's Compensation Commission holds that all consequences of an accident are personal injuries and includes resulting infections or diseases or an aggravation or acceleration of a preexisting disease. No other course is open to the commission, for the statute does not prescribe any standard of physical fitness to which employees must conform. Syphilis plays an important part in many compensation cases and has led to large compensation expenditures by the employer. One is inclined to think of the benefit to the employee only in dollars and cents that he actually receives when speaking of compensation, but it is more a question of rehabilitation than of economic compensation; therefore when an injured employee has a preexisting syphilitic condition that retards his recovery from injury or when the injury aggravates or accelerates the syphiiic condition, it is the duty of the physician to treat the patient with a view to arresting the syphilis.

Basal Metabolism in Routine Examination of Patients

DR. A. L. ANDERSON, Springfield: In more than a thousand patients examined, the basal metabolism rate was too low in 3.5 per cent and too high in 1.5 per cent, exclusive of suspected toxic goiter. Some patients with toxic adenoma who were later cured by thyroidectomy had either a normal or a subnormal rate. Three patients were cured by thyroid extract. One had bronchitis for over four months, one migraine—three attacks a week—in another, duodenal ulcer was suspected. Not all patients with too low a rate are relieved by thyroid extract. Those who were benefited by thyroid extract had a rate between —20 and —34. Some of the patients with too low a rate who responded favorably to thyroid extract showed none of the symptoms peculiar to low basal metabolism, such as drowsiness, dry skin and loss of hair. Patients with too high a rate without other symptoms of toxic goiter were given an additional metabolic reading before a final opinion was reached. A few patients with rapid heart, loss of weight and nervousness without struma showed a high rate and later proved to have toxic goiter. Such conditions as pulmonary tuberculosis and some types of neurosis with symptoms of toxic goiter may

be excluded by determination of the basal metabolism. It is rarely necessary to give large doses of thyroid extract; 3 grains (0.2 Gm.) daily was the largest dose given. Most of these patients responded to half grain (0.03 Gm.) doses three times daily. The following symptoms were often found associated with a low metabolism: drowsiness, dry skin, loss of hair, especially the outer third of the eyebrows, constipation, headache, muscular pains worse at night and chronic eczema.

The Diagnosis of Cerebellar Disease

DR. B. LANDIS ELLIOTT, Kansas City: The cerebellum, like the thalamus, is a junction joint for many afferent and efferent nervous pathways which associate it with different parts of the peripheral and central nervous systems. Interference with the cerebellum or its parts creates new conditions in the apparatus of locomotion, so that movement is performed in a faulty manner. A difficulty in the diagnosis of cerebellar disease is due to the fact that damage to afferent or efferent cerebellar pathways is followed by effects similar to those caused by disease of the cerebellum itself. A useful approach to the symptoms of cerebellar disease is through the study of diffuse cerebellar disease with atrophy of the cortex. In tumors and cysts of the cerebellum, hydrocephalus due to damming back of cerebrospinal fluid, and pressure on neighboring structures obscure the clinical picture. In atrophy of the cerebellar cortex, however, such complications are absent and the symptoms are due to absence of cerebellar function alone. Such cases show ataxia, intention tremor, ataxic speech and nystagmus. Other symptoms generally considered to indicate cerebellar disease are vertigo, adiadokokinesis, hypotonia, asthenia and the past-pointing reaction of Bárány. In brain tumor and abscess these cerebellar signs are combined with a pressure syndrome consisting of choked disks, headache and vomiting. The neighboring nervous apparatus may be affected. Among the earliest structures involved is the trigeminal nerve, with loss of the corneal reflex on the same side. In acusticus tumors, the seventh and eighth nerves are affected. Sometimes lesions of the cerebellum exist without giving clear cerebellar signs. Here the difficulties of the diagnosis increase and a knowledge of special syndromes may be necessary.

Peripheral Burns

DR. B. L. MYERS, Kansas City: Burns have been treated too long as local lesions without consideration of the systemic problems. In this industrial age, burns are common. The physician should study them broadly. Much fine experimental work indicates that the chief problem in burns is systemic—an unknown toxin or a changed physiologic condition with the major loss circulatory in character. The first and greater problem of treatment is associated with the care of shock and circulatory replenishment—keeping up the supply of water, and transfusion of blood to meet the needs of the system. The care of the wound does not end with covering the denuded surface with new skin, but with the restoration of as perfect function to the damaged member as is possible.

Improved Hospital Service and the Public

DR. JOSEPH D. JAMES, Springfield: Many things go to make a happy and satisfied patient. The expressed friendly interest by the hospital management, the skill of the dietitian, the attitude and personality of the nursing staff, have quite as much to do with making a satisfied patient and family as do the skill and reputation of members of the staff. As to the strictly medical factors, stress is laid on the necessity for the earnest efforts of staff members in meeting the well known requirements of a standardized hospital. Cooperation between a hospital management and a staff that wants to maintain such an institution will inevitably result in a following of satisfied patients and friends.

Differentiation of True Diabetes and Pseudodiabetes

DR. B. Y. GLASSBERG, St. Louis: The discovery of insulin has focused attention on the disease known as diabetes mellitus, and many more cases are diagnosed than formerly. Joslin has estimated that one sixth of the persons referred to him because of sugar in the urine do not have diabetes but only a harmless or even transient form of sugar in the urine. A modification of the long used dextrose tolerance test, as to both technic and interpretation, is described as the best available method of differentiation. It is believed that this method offers accuracy as great as that of any of the commonly used laboratory methods. Special attention is drawn to the fact that sugar may be found in the urine regardless of the concentration at which it is present in the blood. The converse also is true: even though the sugar content of the blood is abnormally high, there may be no sugar in the urine. An examination of the blood is urged as the only accurate method of diagnosing diabetes, of differentiating the forms here labeled as true diabetes and pseudodiabetes.

Sinus Disease

DR. EVAN S. CONNELL, Kansas City: The sinuses are classified by most writers into an anterior and a posterior group, the frontals, anterior ethmoids and maxillaries comprising the former, the posterior ethmoids and sphenoids the latter. Sinus disease is classified, from the pathologic point of view, into catarrhal, purulent and hyperplastic, and etiologically into bacterial, allergic, nutritional and endocrine.

Influenza, the exanthems and the common head cold produce most of the bacterial invasions. Allergic sinusitis has become a favorite field of investigation in recent years, and there is danger of overemphasizing this condition. The chief excitants of this type of sinusitis are inhalants, foods and bacteria. Endocrine dysfunction is a factor in some cases of sinusitis; nutritional sinusitis is due for the most part to lack of vitamin A in the diet.

Pain is not a necessary concomitant of sinusitis: many cases have been unrecognized because the patient was free of pain. Postnasal discharge is almost always due to sinusitis. The exceptions in my experience have been infected adenoids, syphilis and malignant conditions.

The sinuses are frequently a source of focal infection, producing such lesions as arthritis, neuritis, bronchosinusitis, colitis, vasomotor rhinitis, choroiditis, retinitis and impaired hearing. A chronic sinusitis which is causing some breakdown of the general economy of the individual should be surgically drained. The appropriate treatment of all acute nasal infections would reduce materially the incidence of chronic sinusitis. Paranasal sinuse infections are increasing in our population. Systemic infections are frequently disseminated from the paranasal sinuses. Chronic sinusitis is a preventable disease. Treatment of sinus disease is not the hopeless problem that many would have us believe, and surgery is an important factor in this treatment.

Thymic Deaths

DR. HARRY M. GILKEY, Kansas City: The tragic suddenness with which thymic death occurs leaves a deep impression on all concerned in the death, particularly when it follows some trivial operation, such as circumcision or tonsillectomy. It is significant that the thymus occurs in the higher vertebrates, reaches its maximum size during early life, and undergoes retrogressive changes at maturity. One would assume that the thymus must have some relation to the functions of growth and development. In spite of the immense amount of energy and labor directed toward the solution of the problems concerned in the anatomy and physiology of the thymus, no uniform agreement has been reached by the various investigators. Status lymphaticus is a condition in which the most important anatomic characteristics are hyperplasia of the lymphatic tissues and thymus, a small heart and narrow vessels. Such individuals are subject to sudden death.

The thymus in its normal anterior mediastinal location is situated so that it covers the base of the heart and great vessels and is in intimate anatomic relation with such important nerves as the vagus, phrenic and inferior pharyngeal. Its weight in the new-born infant is 13 Gm. It is known that it increases in size until puberty, when its average weight approximates 30 Gm. It is most probable that the thymus possesses a regulatory or metabolic influence on growth and development and is interrelated with the endocrine system. Thymic hyperplasia with or without objective symptoms is potentially dangerous to life.

The most constant and striking symptom in thymic hyperplasia is dyspnea, which may be permanent or intermittent.

The stridor is more often inspiratory, though it may be expiratory or both. It may vary in degree from a gurgling or a crowing sound associated with the respiratory effort to severe paroxysms or choking, which may terminate fatally. The cause of dyspnea is variously attributed to the more mechanical obstruction by the enlarged gland to its intimate relation with and pressure on the heart, great vessels and respiratory nerves, to some abnormal or hyperfunctional activity of the gland exerting an influence on the respiratory centers, or a combination of these causes.

The function of the thymus has not been proved. Presumptive evidence classes it with endocrines. Thymic hyperplasia occurs in a large proportion (from 40 to 50 per cent) of infants. It represents a protential danger to life, particularly during the course of acute respiratory infection. Any abnormal respiratory symptom in the new-born or in early infancy should suggest a roentgenogram to determine the possible existence of a hyperplastic thymus. All hyperplastic thymi in infants, whether or not accompanied by symptoms, should be given the benefit of roentgen therapy.

The Problem of the Narcoleptic

DR. E. S. SMITH, Kirksville: The term narcolepsy, coined by Gelineau in 1880, is applied to a clinical entity characterized by an irregularly recurring desire to sleep without apparent cause and by a sudden loss of muscular tonus during laughter and other emotional states with a consequent tendency to fall or collapse regardless of time, place or immediate occupation. The latter phenomenon has been denominated cataplexy. This disease has been regarded for years as a medical curiosity. Doyle and Daniels report sixty-seven cases traced after examination in the Mayo Clinic prior to September, 1930. Janota and Skala first reported the use of ephedrine at the meeting of the Neurologic Society of Prague, June 21, 1930. Narcolepsy becomes under modern living and transportation conditions a problem because of the number of narcoleptic persons who are driving motor cars and engaging in pursuits which make its victims potentially dangerous to others.

Types of Onset in Pulmonary Tuberculosis

DR. E. E. GLENN, Mount Vernon: Until recent years the onset of pulmonary tuberculosis has been considered gradual or insidious in practically all cases. The first lesion was believed to appear in the apex of the lung and by a slow process extend downward. During the past few years, the opinion of many clinicians has changed in regard to the type of onset and the character of the initial lesion usually present. It has been proved that the initial lesion has an acute pneumonic character in many cases; its appearance is often accompanied by acute symptoms, or the acute symptoms appear soon after the beginning of the lesion. The acute symptoms often resemble influenza or some other acute respiratory disease. The initial lesion usually appears in the subapical region but may appear in other parts of the lung and may be lobar in extent.

The histories of 200 patients with pulmonary tuberculosis at the Missouri State Sanatorium have been studied together with the roentgenograms made at the time of their admittance, to gain information concerning the type of onset, clinical course and the extent of the pulmonary lesion. The patients may be placed in three groups when the onset and course of the disease is considered: (1) those with an acute onset, ninety-five, or 47.5 per cent; (2) those with an insidious onset with later acute exacerbations, fifty-six, or 28 per cent; (3) those with an insidious onset and course, forty-nine, or 24.5 per cent. This classification is the same as that used by Douglas, Pinner and Walepor, and the statistics are much the same. Also, it was found that the duration of illness of those with disease minimal in extent was more than twice that of those with disease far advanced in extent, which indicates that tuberculous disease which has a tendency to spread usually does so comparatively fast.

Twenty-four patients in the group had a nodular apical type of disease, which was formerly thought to be the forerunner of extensive disease. These patients have shown no evidence of active disease, and serial roentgenograms have shown no change in the lesions. On the other hand, the subapical or lobar types of lesions are very unstable and rapidly progress or retrogress. Disease beginning with acute infiltrations usually responds well to rest and compression therapy if instituted soon after onset; hence the great importance of early diagnosis.

Advances in Etiology and Treatment of Suppuration of Lungs

DR. H. I. SPECTOR, St. Louis: This paper consists of a review of the literature on acute and chronic suppuration of the lungs, with a clinical, bacteriologic and roentgenographic study of eighty-three cases. Recent experimental and clinical evidence strongly suggests the possibility that the various forms of suppuration of the lungs may merely represent different phases of the disease fusospirochetosis. Recent investigations seem to suggest the possibility that mouth anaerobes, particularly spirochetes and fusiform bacilli, play a considerable part in the production of bronchopulmonary lesions. Until recently, surgery occupied a prominent place in the treatment of suppuration of the lungs, especially in the treatment of abscesses. A review of the more recent literature impresses on one the thought that now conservative medical treatment is gradually becoming the preferred treatment. The majority of writers, in discussing the use of the arsenicals, omit mention of dosage, frequently of administration, or reasons for favorable or unfavorable results. Some content themselves with the statement that the dosages used are the same as in syphilis, while others advocate intensive doses, such as from 0.6 to 0.9 Gm. of neoarsphenamine. Large doses do more damage than good, while small doses prove effective. Of eighty-three cases of acute and chronic suppuration of the lungs, twenty-five were treated with small doses of neoarsphenamine, from 0.05 to 0.15 Gm., and of these 80 per cent were either cured or improved.

Surgical Rest and Compression for Pulmonary Tuberculosis

DR. EARL C. PADGETT, Kansas City: If one grants that pneumothorax does not in the strictest sense fall in the category of surgical collapse, there remain two strictly surgical procedures, namely, phrenicectomy and extrapleural thoracoplasty, on which one may base a discussion of the rationale, indications and results of surgical collapse. The other rarer surgical procedures, such as section of the scaleni, intercostal neurectomy and pneumolysis, although of some use occasionally, need only to be touched on in passing. The rationale of surgical collapse is largely explained on the basis of rest of inflamed pulmonary tissue plus the mechanical factor of cavitation collapse. Although the therapeutic results are directly proportionate to the degree of rest and collapse, the results obtained by partial rest and partial compression of a diseased lung have caused the operation of phrenicectomy to be used in a growing number of situations, both as an independent procedure and as a complementary one.

In basal tuberculosis, phrenicectomy is of immense assistance in arresting the disease. In unilateral tuberculosis of the productive type, probably 50 per cent are assisted toward a cure. As an accessory to certain types of incomplete pneumothorax, after a pneumothorax is discontinued, or to prolong the refill interval of pneumothorax, the operation is of value. The operation is indicated preliminary to thoracoplasty; and in certain instances of hemoptysis and pain due to adhesions, the symptoms may be removed.

In general, there are three indications for extrapleural thoracoplasty, which are as follows: 1. Pulmonary tuberculosis of the predominantly fibroid type, often with but also without cavitation, with the active lesion limited to one lung, is the classic situation for the operation. In this group fall the favorable, the doubtful and the unfavorable cases. 2. The second indication follows unsatisfactory pneumothorax and includes cases with an adherent upper lobe which prevents apical compression or those with a band of adhesions preventing collapse of some essential area. 3. The third indication occurs after a tuberculous empyema of one variety or another has developed.

On an otherwise hopeless group of individuals, the prognosis of extrapleural thoracoplasty may be briefly summarized as follows: About one tenth fail to recover from the operation. About one half become clinically free from symptoms and are restored to work, and another one third are improved. The remainder die from the progress of the disease.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

2: 155-276 (May) 1932

*Adenomyoma (Endometrioma) of Umbilicus. H. Spitz, Nashville, Tenn.—p. 155.
*Specificity of Bacterial Allergy. W. T. Vaughan, Richmond, Va. —p. 179.
*Active Immunization Methods Against Acute Diffuse Peritonitis. B. Steinberg, Toledo, Ohio.—p. 187.
*Relative Value of Cultural Methods and Guinea-Pig Inoculation in Diagnosis of Tuberculosis. T. B. Magath and W. H. Feldman, Rochester, Minn.—p. 199.
*Dysplastic Granulocytemia. A. Weiss and A. A. Goldbloom, New York.—p. 229.
Classification of Leukemias. A. S. Rubnitz, Omaha.—p. 243.
Separation from Blood Glucose of Two Non-Glucose Reducing Substances. R. J. Pickard, San Diego, Calif.—p. 255.

Adenomyoma of Umbilicus.—Spitz reports an additional case of adenomyoma of the umbilicus. The geographic distribution of all the cases heretofore reported is given and the cases are arranged in chronological order. Age, menstrual history, marital state, number of pregnancies, the association of other tumors and previous operations of each case are considered. Clinical symptoms, such as pain, swelling, discoloration, discharge and size of growth are tabulated; as are also the histologic observations in regard to the endometrial-like glands, smooth muscle, sweat glands and other constituents of the growth. Some of the various theories of origin are considered. Those cases showing definite cordlike attachments or other direct evidence of attachment to the peritoneum are discussed in connection with the serosal theory of origin.

Specificity of Bacterial Allergy.—Vaughan states that the knowledge of clinical bacterial allergy and vaccine treatment is still quite obscure on many points. The factors that enter into the reaction are certainly more complex than those of pollen or other inhalant allergy, apparently owing primarily to the fact that while with the latter one is dealing with an extrinsic allergen which is absorbed into the system only on occasion, with the former one is dealing with an extrinsic allergen which is constantly present. It appears to be its presence and activity in the body that is responsible for the tuberculin type of reaction, a phenomenon whose explanation will help much in the understanding of bacterial allergy. One is dealing not alone with an antigen-antibody reaction but also with a concomitant specific infection. Successful treatment must therefore do more than merely desensitize against the specific allergin; it must also in some way eradicate the focus of living organisms which are responsible for the continuation of the reaction between themselves and the tissues of the host. The evidence to date indicates that bacterial desensitization is a rational procedure; and therapeutic results in appropriate cases, while not spectacular, justify the procedure.

Immunization Against Acute Diffuse Peritonitis.—According to Steinberg, heat-killed colon bacilli used as intraperitoneal vaccine can induce a protection against a colon bacillus peritonitis equal to that of living bacteria. However, in fecal peritonitis the living colon bacilli confer a greater protection than heat-killed organisms. It is assumed that this difference is due to a greater antigenic value of living bacteria. Because animals vaccinated with colon bacilli survive fecal peritonitis (feces contain many species of bacteria), the immunity is considered, at least in greater part, nonspecific. The protection against acute diffuse peritonitis is of a twofold nature: a general immunity and a coincident presence of phagocytes in the peritoneal cavity with a consequent phagocytosis. The active general immunity can be evaluated as 35 per cent and the local phagocytosis as 65 per cent under the conditions of these experiments. The greater number of these phagocytes are polymorphonuclear in type. This general immunity is apparently sufficient to protect animals by the subcutaneous route against a colon bacillus peritonitis.

Cultural Methods in Diagnosis of Tuberculosis.—Magath and Feldman call attention to the fact that several recently devised methods of cultivating Mycobacterium tuberculosis are excellent and can be expected to yield a high percentage of growth in material in which the organism can be demonstrated in direct smear. When bacilli of tuberculosis cannot be demonstrated in direct smear in clinical material, fewer growths will be obtained on culture than can be obtained by inoculation of guinea-pigs. Although most acid-fast bacilli that grow on these special mediums will without doubt be virulent bacilli of tuberculosis, the only way positively to prove virulence and identify species is by inoculation of animals. For this reason, positive cultures are no more final than the finding of acid-fast bacilli by direct smear. The authors believe that while cultural methods are valuable and should be frequently used for demonstrating tubercle bacilli, inoculation of guinea-pigs remains the best method for proving the presence of virulent Mycobacterium tuberculosis in clinical material that is either known or not known to contain acid-fast bacilli.

Dysplastic Granulocytemia.—Weiss and Goldbloom describe a case which demonstrates a symptom complex somewhat similar to that already described by Schultz and others as agranulocytosis. Detailed scrutiny of the case, however, revealed definite basic differences. The term dysplastic granulocytemia was suggested to designate this idiopathic affliction occurring in an apparently healthy individual. It is characterized by a primary involvement of the granulopoietic system with the resultant production and distribution of imperfectly constructed neutrophils. Although the polymorphonuclears dropped to 3 per cent and the leukocytes to 700 during the course of illness, granulocytes were always present, amounting to between 32 to 93 per cent of the cells. Such being the case, the term agranulocytosis cannot fit. Notwithstanding the fact that the leukocytes rose to 40,400 and the neutrophils to 93 per cent, and no intercurrent infection apparently intervened, the patient died. Instead of a small anal gangrenous condition improving with the return of the neutrophils, it gradually grew larger. Heretofore all the cures in cases of agranulocytosis have been attributed to the return of the granulocytes, whereas in this case a marked leukocytosis did not prevent death. The death in this case can be explained only by the inability of the neutrophils, although present in larger numbers, to assume their normal function because of an inherent deficiency in their formation. It is because of these differences that the authors believe that the term dysplastic granulocytemia is more suitable for that group of cases that may fall within the description they give. They feel that a careful morphologic examination of future cases will tend to show that many of the patients presumably suffering with the agranulocytic syndrome are in reality examples of dysplastic granulocytemia.

American Review of Tuberculosis, New York

25: 577-672 (May) 1932

History of the Rl Strain of Tubercle Bacillus. L. U. Gardner, Saranac Lake, N. Y.—p. 577.
*Protest Against Conception of Arrest in Pulmonary Tuberculosis as Outlined by Classification of the American Sanatorium Association. L. H. Fales, Livermore, Calif.—p. 591.
*Scaphoid Scapula and Pulmonary Tuberculosis: Survey of Three Hundred and Twenty-Five Cases at Missouri State Sanatorium (1930). H. A. Kemp, Dallas, Texas.—p. 602.
Comparison of Tissue Reactions to Testicular Inoculation of Acid-Fast Bacilli. E. R. Long and A. J. Vorwald, Chicago.—p. 614.
*Rest Treatment of Nontuberculous Pulmonary Abscess. H. H. Cherry, Waverly Hills, Ky.—p. 634.
Treatment of Pleural Effusions Complicating Artificial-Pneumothorax Therapy. J. P. Nalbant, Northville, Mich.—p. 650.
Metaphen-in-Oil in Treatment of Pleural Effusions Complicating Pneumothorax. I. E. Rudman and R. T. Ellison, Philadelphia.—p. 661.

Conception of Arrest in Pulmonary Tuberculosis.—Fales calls attention to the fact that the present classification of pulmonary tuberculosis by the American Sanatorium Asso-

ciation has never been satisfactory on account of its ambiguousness; and, owing to the advances made in the knowledge of pulmonary tuberculosis during the last ten years, it is doubly unsatisfactory. On account of the latency of pulmonary tuberculosis and the well being of patients following rest, without corresponding changes in the anatomic condition of the lungs, lack of constitutional symptoms should receive but slight consideration in determining an arrest. On the other hand, constitutional symptoms, if found to be due to tuberculosis, may be considered an expression of activity. As it seems to have been conclusively demonstrated that physical signs, especially râles, are of no value in determining progression and retrogression of a tuberculous lesion, it follows that they have no place in a schema of classification. The roentgen ray must be considered the main reliance in determining an arrest or a healed lesion and should receive this place of prominence in a schema of classification. When, by the comparison of serial roentgenograms at quarterly intervals, a lesion is found hard and fibrosed, and it has remained stable for six months, the author considers that an arrest has been attained, provided an additional six months is passed with carefully graduated exercise and observation without reactivation of the disease. A future schema of classification should take into consideration the type of tuberculosis present, not merely the extent of the lesion. This is highly essential, not only as a guide for prognosis and treatment but for affording a common nomenclature for the clinician, roentgenologist and pathologist.

Scaphoid Scapula and Pulmonary Tuberculosis.—Kemp gives a tabulation of the age incidence of scaphoid scapula in 325 cases of pulmonary tuberculosis and offers evidence that scaphoid scapula is a criterion of a constitutionality peculiarly susceptible to tuberculosis. The age incidence of scaphoid types in the first two decennia of life was found to be remarkably higher in percentage occurrence than published reports for normal or "well" groups. The incidence of scaphoid types in the third decennium was not so greatly increased as in the first two age groups but was definitely higher than that reported for normal or well groups for the same age period. Scaphoid and mixed types seem to be more susceptible to tuberculosis, since they were found in the majority in the hospital groups, while the convex types seem to be more resistant, since they were found in the majority of the convalescent cases.

Rest Treatment of Nontuberculous Pulmonary Abscess.—According to Cherry, early and prolonged treatment of pulmonary abscess results in permanent healing in a much larger number of cases than generally considered. Abscess engrafted on bronchiectasis, abscess due to Friedländer's pneumobacillus, or chronic abscess due to any cause responds poorly to this mode of treatment. Multiple abscesses heal not unlike single abscesses on rest therapy. Rest treatment, uneventfully carried out, leads to one of two things: (1) cure of the abscess or (2) improvement of the patient's condition so that operative hazards are the fewest.

Annals of Internal Medicine, Ann Arbor, Mich.

5: 1221-1336 (April) 1932

*Relation of Intestinal Tract and Diet to Treatment of Arthritis. R. Pemberton and E. G. Peirce, Philadelphia.—p. 1221.
*Toxic Granulocytopenia, Purpura Hemorrhagica and Aplastic Anemia Following the Arsphenamines. A. B. Loveman, Ann Arbor, Mich. —p. 1238.
Ascending Paralysis Resulting from Drinking of "Jamaica Ginger": Clinical Study of Fifty Cases. D. H. Werden, Los Angeles.—p. 1257.
*Peripheral Vascular Diseases: Treatment with Acetylcholine Hydrochloride. W. C. Waters, Atlanta, Ga.—p. 1267.
*Metastatic Malignant Tumors of Brain. H. F. Dunlap, Rochester, Minn.—p. 1274.
Ephedrine in Treatment of Narcolepsy. H. A. Collins, Des Moines, Iowa.—p. 1289.
Typhus-Like (Spotted) Fever from Tick Bite: Rocky Mountain Spotted Fever Type; Identified with a Symbiont Proteus-Like Septicemia. N. Toomey, Palmyra, Mo.—p. 1296.
Postpneumonic Lung Abscess Resembling Lung Tumor: Case Report. G. F. Cooper, Canacao, Philippine Islands.—p. 1308.
Modern Conception of Retinal Detachment with Its Relation to Internal Medicine. C. A. Clapp, Baltimore.—p. 1313.
How to Obtain More Autopsies. D. S. Pulford, Woodland, Calif. p. 1315.

Intestinal Tract and Diet in Arthritis.—Pemberton and Peirce believe that dietetic therapy affords the sine qua non of successful treatment in a large number of cases of arthritis. Such therapy should be applied, however, in appropriate cases only, and on the basis of a familiarity with the principles concerned and with limiting factors to which references are given. Under conditions of undernutrition approaching starvation, not only may the active symptoms of the disease subside but there may be also, occasionally, an absorption of detritus or pathologic exudate in or around joints nearly or quite ankylosed, which reduces the amount of limitation to motion imposed by the existing fibrous contractures. In suitably selected cases the gain so achieved, though necessarily of small extent because of bony impingements and the like, may have great significance for the activities of the patient. Persons with atrophic and hypertrophic arthritis have experienced sharp improvement on low calory diets from which all vitamins were definitely excluded. While in no way negativing the rôle of the vitamins in relation to the rheumatoid syndrome as a whole, it is clear that the reduced food intake and not the presence of vitamins primarily determined the immediate and sharp benefit observed.

Toxic Granulocytopenia, Following the Arsphenamines.—Loveman reports five cases of various types of bone marrow depression following the arsphenamines. He believes that the term "agranulocytic angina" is inadequate and misleading and suggests that granulocytopenia is a better term. Inorganic arsenic, organic arsenic and benzene may each depress any or all of the elements of the bone marrow. In the blood dyscrasias following the arsphenamines, the arsenic and benzene radicals are probably both responsible. A predisposed hematopoietic weakness or insufficiency which in any case may be erythropoietic, thrombocytopoietic or any combination of these, is perhaps an important secondary factor in the etiology of diseases of the bone marrow following arsphenamine administration. A syphilotoxic factor affecting the bone marrow is suggested as a possibility in the etiology of the blood dyscrasias in syphilitic persons. The most adequate treatment is prophylactic. Sodium thiosulphate and frequent small blood transfusions offer the best means at present for combating the condition.

Peripheral Vascular Diseases.—Waters treated three patients having trophic lesions due to vascular disease of the extremities by means of intramuscular injections of acetylcholine hydrochloride. Healing of gangrenous areas, relief of pain and elevation of the surface temperature to a higher level was obtained by the use of the drug. In one case, pulsations in the peripheral arteries were reestablished. In from one to three hours following an injection, the cutaneous temperature in the affected parts was increased from 2 to 5 degrees C. This elevation lasted from eighteen to twenty-four hours and was accompanied by a sense of warmth and relief of pain in the extremities. The advantages of the use of acetylcholine are (1) the ease of its administration, (2) the absence of constitutional reactions following its use, and (3) the ability to maintain a constant and uniform elevation of the surface temperature by frequently repeated injections.

Metastatic Malignant Tumors of Brain.—Dunlap reports that the incidence of metastatic tumor of the brain is at least 5 per cent of all tumors of the brain observed at the Mayo Clinic. There are focal (masses) and diffuse (encephalitic) lesions in the brain. The primary malignant tumor was in the lung, breast or kidney in more than 50 per cent of the cases. The primary lesion is frequently silent. Metastatic tumors of the brain often present essentially the same syndrome as primary tumors of the brain. All cases presenting clinical evidence of a tumor of the brain should be studied carefully for evidence of primary malignant tumor outside the central nervous system. In all cases in which there is clinical evidence of tumor of the brain, roentgenograms of the thorax and skull, for evidence of metastasis, should be made as a routine. Choked disks occurred in 40 per cent of the cases of metastatic tumor of the brain. Multiplicity of lesions, and consequent dissemination of signs, may lead to the assumption that the cerebral manifestations are the result of inflammatory disease. Mental symptoms, especially of a stuporous or confusional type, occurred in more than 50 per cent of the cases. The incidence and intensity of mental symptoms in this series of cases appeared to bear some relationship to the incidence of the encephalitic changes.

Annals of Surgery, Philadelphia

95: 641-800 (May) 1932

Repair of Cleft Palate, Concerning Palatine Insertion of Superior Constrictor Muscle of Pharynx and Its Significance in Cleft Palate, with Remarks on "Push-Back Operation." G. M. Dorrance, Philadelphia.—p. 641.

Preoperative and Postoperative Care of Congenital Clefts of Lip and Palate. E. A. Kitlowski, Baltimore.—p. 659.

Transthoracic, Extrapleural Thoracotomy. G. de Tarnowsky, Chicago.—p. 667.

*Pulmonary Abscess. L. W. Frank, Louisville, Ky.—p. 675.

Phrenicectomy in Treatment of Pulmonary Tuberculosis. E. Bonime, New York.—p. 683.

*Repair of Intestinal Fistulas. H. L. Baker, Chicago.—p. 687.

*Intestinal Fistulas: Method for Preventing Digestion of Skin. E. B. Potter, Ann Arbor, Mich.—p. 700.

Prevention of Fecal Fistula After Appendectomy: Simple Ligation Versus Precarious Purse-String. J. F. Baldwin, Columbus, Ohio.—p. 704.

Congenital Unilateral Renal Agenesia. D. C. Collins, Rochester, Minn.—p. 715.

Injection Treatment of Varicose Veins. K. M. Lewis, New York.—p. 727.

*Sodium Morrhuate as Sclerosing Agent in Treatment of Varicose Veins. I. S. Tunick and R. Nach, New York.—p. 734.

Varicose Veins and Their Treatment, with Study of Three Hundred and Fifty-Four Cases. D. R. Jensen, New York.—p. 738.

*Varicophlebitis and Injection Treatment. L. Jacques, Chicago.—p. 746.

*Relation of Chronic Varicose Ulcer to Epithelioma, Based on Records of Over One Thousand Chronic Leg Ulcers. J. Tenopyr and I. Silverman, Brooklyn.—p. 754.

Problem of Delayed Union and Ununited Fracture. H. R. Owen, Philadelphia.—p. 759.

Pulmonary Abscess.—Frank presents a study of forty-nine cases of lung abscess occurring during the past seven years. He excluded from consideration those cavitations due to tuberculosis and bronchiectasis. Likewise, he did not consider those due to the aspiration of a foreign body, or those due to various types of infection, such as actinomycosis, or pulmonary suppuration resulting from bronchial obstruction due to new growth. A study of the forty-nine cases reveals the fact that eighteen of them, or 36 per cent, followed some type of surgery. Thirteen cases developed in the course of pneumonia, and in twelve cases the cause of the pulmonary suppuration could not be determined. Two cases occurred in infections of the blood stream, and in these the abscesses were small and multiple and were not discovered until necropsy. Two cases resulted from so-called influenza; one was due to actinomycosis and one to an aspirated foreign body. As to the sex distribution, thirty-two occurred in males and seventeen in females. This agrees approximately with the usual incidence as given by most writers on the subject. In those cases occurring as a postoperative complication of the eighteen cases in this group, the abscess was located on the right side twelve times as compared with six times in the left lung. Sixty-six per cent of these cases occurred between the ages of 20 and 40. The distribution was as follows: 10 to 20, two; 20 to 30, nine; 30 to 40, three; 40 to 50, two; 50 plus, two. When one considers the number of tonsil operations done on children, it is surprising that more cases do not occur in the earlier decade. Such observation leads to the conclusion that it is not the aspiration of blood alone which is the causative factor in the production of pulmonary abscess. It is the author's belief that the high incidence of lung abscess in the middle period of life is probably due to the fact that at that time one finds dental infections most common. Children rarely have pyorrhea or infected teeth; hence the low incidence of the disease in the first decade. Of the eighteen cases in which the abscess followed surgical procedures, seven were due to tonsillectomies and eleven to other types of surgery, one a mastoid, another following drainage of a cervical abscess. In every case a general anesthetic was employed and in all some ether was given.

Repair of Intestinal Fistulas.—According to Baker, the treatment of intestinal fistula concerns itself chiefly with the location and chronicity of the lesion. In fistulas arising from the duodenum and lower jejunum, the blood chlorides and body fluids, as well as body nutrition, are of prime importance, and measures should be directed to furnishing chlorides in the form of physiologic solution of sodium chloride, and nutrition in the form of dextrose, by hypodermoclysis, by rectal infusion, or by both methods. The fistula itself should not be treated by direct suture. In fact, so many failures have been reported that a conservative attitude should be employed. The skin and operative wound should be protected as well as possible, and this may be done with a liquid adhesive plaster, kaolin, or other ointments, and the sinus tract itself may be plugged with a modified Beck's paste. The pancreatic secretions may be activated by the use of an acid medium, and continued suction of the wound may be advantageous. The treatment in this type of fistula is one of prevention, as many of them follow cholecystostomy or transduodenal removal of biliary stone. Care in breaking up adhesions about the gallbladder with immediate repair of injury to the duodenum, as well as careful suturing of operative incisions in the duodenum, will greatly lessen the incidence of this serious condition. Fistulous tracts in the ileocecal region are more favorable for operative treatment than in any other region. The intestinal contents are not highly infective; the peritoneal cavity shows a resistance to infection, and healing of the repaired viscera usually takes place. In the lower abdominal tract, as many of these fistulas arise as a result of removal of adherent organs, gentleness during operative procedures and repair to the traumatized intestine will greatly reduce this condition. During the acute stage of fistula formation the treatment is, of course, directed toward the local or general peritonitis, whichever is present. Many of these fistulas close spontaneously, and here too the tract may be injected with a modified Beck's paste and obliteration of the sinus may result. In the chronic type, however, operative procedures are a formidable undertaking because of the dense adhesions present and the involvement of other organs by these adhesions. In the lower sigmoid, a colostomy is often advantageous after the repair has been made. The colostomy may be closed several weeks later, and this procedure promises the best results in this type of fistula. The incidence of peritonitis following the operative repair is not so great as one would expect and is probably the result of protective processes that have arisen from inoculation to the peritoneal cavity by the infected fecal current of the sinus.

Intestinal Fistulas.—Potter abandoned, some time ago, any attempt to protect the skin around an intestinal fistula by medicated dressings or mechanical covering, since these frequently shut off from contact with the air a surface that would be better air dried. He now prevents or minimizes digestion and ulceration of the skin by keeping the irritating discharge from coming in contact with the skin about the stoma. The area is cleaned off with alcohol and dried, and no medication or dressing is applied. A continuous suction apparatus (centrally controlled) is used during the hours when the patient is awake. A glass-tipped rubber tube, in the hands of the patient himself, has proved to be the most satisfactory method of applying this suction, since plugging of the tube or cessation of the suction is immediately discovered and may be corrected. This plan also provides the patient with an occupation which, though not exactly pleasant, stimulates his interest in his progress and makes him a much better attendant than average nursing care affords. The difficulty with this form of treatment has been that during the hours of sleep the discharge collects on the skin, and in a few hours digestion and erosion have occurred, vitiating the result of a day's careful attention. This problem the author has found to be excellently cared for by placing the patient on an anterior Bradford frame with a slit opening in the region of the fistula. A bedpan, placed beneath the opening on the bed, serves as a receptacle for the discharge. Within a short time patients accustom themselves to such a frame and sleep comfortably through the night, as well as during a rest period in the day, with ideal care of the fistula requiring no conscious effort on the part of patient or attendants. The dependent position of the fistula, in most cases, tends to produce some degree of prolapse of the intestinal mucosa, so that the opening in the intestine is some distance from the skin surface. The fistula then assumes somewhat the character of a well made colostomy, with the actual opening in the intestine far enough below the skin surface to prevent soiling of the skin as long as the patient lies in a prone position.

Sodium Morrhuate for Varicose Veins.—Tunick and Nach call attention to the fact that sodium morrhuate does not produce cramp or pain following its injection for varicose veins. It is apparently not destructive to tissues and therefore least likely to produce tissue necrosis or slough if injected outside the vein. It produces a firm obliteration of the vein with little periphlebitis. It is not toxic. The dose is from 1 to 5 cc. of the 5 per cent solution, the average dose being 2 cc.

Varicophlebitis.—Jacques presents clinical evidence pointing to the existence of resting infection in the walls of varicose veins. The dangers of the injection treatment of varicose veins arise in part from the lighting up of such infection, with resulting ascending thrombophlebitis and embolism. Evidence of the presence of latent infection in the veins of one extremity should call attention to the likelihood of stirring up such infection in the opposite extremity. The development of adequate methods of detecting latent infection will aid in eliminating an important source of danger associated with injection therapy.

Relation of Chronic Varicose Ulcer to Epithelioma.—Tenopyr and Silverman report that nineteen cases of epithelioma of the lower extremities occurred at the Kings County Hospital for the period of 1921-1931, inclusive. Over 1,000 chronic leg ulcers were admitted during the same period. Only four cases of epithelioma were found among these arising on the sites of such ulcers that had been present for from ten to twenty years. The weight of evidence, therefore, is strongly against the common belief that chronic ulceration over prolonged periods plays an important part in the causation of cancer.

Archives of Pathology, Chicago

13: 543-690 (April) 1932

*Medial Degeneration in Aorta of Rabbit Produced by Diphtheria Toxin. G. L. Duff, Toronto, Canada.—p. 543.
*Primary Pulmonary Tubercle Appearing in Patient with Advanced Hodgkin's Disease. H. C. Sweany, Chicago.—p. 558.
Experimental Pathology of Liver: VI. Restoration of Liver in White Rats After Partial Removal and Splenectomy. G. M. Higgins and J. T. Priestley, Rochester, Minn.—p. 573.
*Action of Antileukocytic Serum on Tissue Cultures. W. C. Hueper and M. A. Russell, Philadelphia.—p. 584.
Experimental Production of Glomerulonephritis in Rabbit. H. F. Helmholz, Rochester, Minn.—p. 592.

Medial Degeneration in Aorta of Rabbit Produced by Diphtheria Toxin.—Duff reports that successive intravenous injections of diphtheria toxin in suitable quantities produce in rabbits severe medial degeneration of the aorta and its large branches within from eight to fourteen days. Damage to the arteries is probably the result of the direct toxic action of diphtheria toxin on the media. The changes in the media are most marked in the arch and thoracic portion of the aorta, resulting in thinning of the arterial wall, dilatation and the formation of aneurysmal sacs. With the establishment of calcification, transverse fissures appear on the intimal surface. The lesion commences in the middle third of the media, primarily as a cloudy swelling, degeneration and necrosis of muscle fibers. Fatty changes occur in the process, at least in its later stages. Elastic fibers, slightly later, also undergo degeneration with the loss of elasticity and the development of stiffness and rigidity even before the appearance of calcification. Calcification is first seen as a finely granular deposit in the débris of degenerated muscle fibers but later involves also the elastic fibers and becomes most prominent in them.

Pulmonary Tubercle in Hodgkin's Disease.—Sweany describes an extremely early primary pulmonary tuberculous complex occurring near the end of a case of advanced Hodgkin's disease. Two characteristic types of lesions were found in the same body: a small early tuberculous focus in the lungs and adjacent lymph nodes, and advanced Hodgkin's disease in the cervical and peripancreatic lymph nodes, liver and spleen. The lesions in the tissue showing Hodgkin's disease resembled malignant changes of lymphoid cells similar to those originating in the lymph nodes. Only human tubercle bacilli were isolated from the lesions of Hodgkin's disease. No filtrable forms could be demonstrated. The author believes that one is justified in concluding that Hodgkin's disease in the patient studied developed independent of tuberculous infection, and that the theory of a tuberculous origin of the disease is not supported by this case.

Antileukocytic Serum.—According to Hueper and Russell, antileukocytic serum has an antiproliferative and cytolethal effect on leukocytes and other tissue cells of the same species against which the serum has been prepared. Antileukocytic serum has apparently also a slight to moderate antiproliferative effect against leukocytes of a different species. Serum prepared against leukocytes of leukemic chickens is ineffective against human leukemic leukocytes.

Arkansas Medical Society Journal, Little Rock

28: 209-222 (April) 1932

Tularemia: Initial Lesion on Scrotum. M. J. Kilbury, Little Rock, and J. M. Kolb, Clarksville.—p. 209.
Relation of the Physician to the Public, to Each Other and to the Patient. E. E. Barlow, Dermott.—p. 210.
Medical Care of Handicapped Child. A. C. Shipp, Little Rock.—p. 213.

Colorado Medicine, Denver

29: 185-232 (May) 1932

*Symptoms and Diagnosis of Coronary Artery Disease. F. M. Smith, Iowa City.—p. 189.
Should Children Wear Glasses? W. H. Crisp, Denver.—p. 193.
Congenital Absence of Both Clavicles and Malformation of Cranium (Cleidocranial Dysostosis). W. W. Barber and L. D. Buchanan, Denver.—p. 196.
Nervous Indigestion. H. Gauss, Denver.—p. 202.

Coronary Artery Disease.—Smith calls attention to the fact that coronary occlusion has frequently been mistaken for the severe forms of angina pectoris. The character and distribution of the pain may be identical. The pain in coronary occlusion, however, is usually more lasting and may continue for hours or days, even after repeated hypodermic administrations of morphine. The pain is, moreover, ordinarily accompanied or followed by some manifestation of cardiac damage, which is the deciding factor in the diagnosis. The differentiation of angina pectoris from the minor forms of coronary occlusion is extremely difficult, yet highly important from the standpoint of treatment. In every instance in which the pain is more severe than usual or comes on while at rest, the possibility of coronary occlusion should be considered and the patient given the benefit of a period of absolute rest. If in questionable cases the heart is carefully watched for possible changes in the observations, the clinician will occasionally be rewarded by the detection of physical signs that will enable him to establish the diagnosis of coronary occlusion.

Journal of Clinical Investigation, Baltimore

11: 455-646 (May) 1932

Chemical Studies of Blood in High Intestinal Obstruction: I. Distribution of Phosphorus and Intracellular Changes. G. M. Guest and W. D. Andrus, Cincinnati.—p. 455.
*Id.: II. Relation Between "Toxemia" and Chemical Changes. W. D. Andrus, G. M. Guest, R. F. Gates and Alta Ashley, Cincinnati.—p. 475.
*Spinal Fluid in Hypertension. S. A. Shelburne, D. Blain and J. P. O'Hare, Boston.—p. 489.
Influence of Experimental Thyroid Intoxication on Potassium, Sodium and Water Content of Myocardium. E. M. MacKay and H. C. Bergman, La Jolla, Calif.—p. 497.
*Excretion of Xylose as an Index of Damaged Renal Function. Ella H. Fishberg and L. Friedfeld, New York.—p. 501.
*Hypoglycemic Reactions Following Glucose Ingestion. W. S. McClellan and H. S. H. Wardlaw, New York.—p. 513.
Copper and Nonhemoglobinous Iron Contents of Blood Serum in Disease. A. Locke, E. R. Main and D. O. Rosbash, Chicago.—p. 527.
Changes in Circulation Produced by Gradual Occlusion of Pulmonary Artery. J. H. Gibbon, Jr., Mary Hopkinson and E. D. Churchill, Boston.—p. 543.
Studies of Blood Glycolysis: I. Sugar and Phosphorus Relationships During Glycolysis in Normal Blood. G. M. Guest, Cincinnati.—p. 555.
Id.: II. Sugar and Phosphorus Relationships During Glycolysis in Blood of Infants and Children with Various Diseases. G. M. Guest, Cincinnati.—p. 571.
Increased Elastic Tension of Lung in Experimental Pneumonia. C. M. van Allan and C. Wu, Peiping, China.—p. 589.
Excretion of Inorganic Sulphates. J. M. Hayman, Jr., with assistance of Sara M. Johnston, Cleveland.—p. 607.
Mechanism of Nephrotic Edema. R. F. Loeb, Dana W. Atchley, D. W. Richards, Jr., Ethel M. Benedict and Mary E. Driscoll, New York.—p. 621.
*Effect of Ventriculin on Blood Sugar Level in Patients with Pernicious Anemia. S. M. Goldhamer, Ann Arbor, Mich.—p. 641.

Intestinal Obstruction: Toxemia.—Andrus and his associates report that, in dogs with pyloric obstrucion, repeated subcutaneous injections of small doses of histamine have the effect of hastening the development of those chemical changes in the blood which have been held by many to be the most important ultimate cause of death. Histamine has been employed as a known substance that is at least closely related to the toxic substances that appear in the contents of a segment of obstructed or strangulated intestine. Histamine, injected subcutaneously as in the experiments, stimulates the flow of gastric juice, and in the presence of vomiting such increased secretion results in more rapid losses of electrolytes and water than occur in animals with simple obstruction; in consequence

of this there is a more rapid development of the whole cycle of the symptoms and chemical changes that ordinarily accompany intestinal obstruction. On the basis of their experiments the authors suggest that patients with intestinal obstruction plus strangulation, or dogs with experimental obstruction plus closed loops, die sooner than do those with simple obstruction, not because of any specific general "intoxication" of the body tissues but because the slow absorption of histamine-like substances from the intestine results in an acceleration of the progress of all those chemical changes which occur secondarily to the losses of gastric secretions.

Spinal Fluid in Hypertension.—In a study of fifty cases of hypertensive disease, Shelburne and his associates found that twenty-one of the patients had increased intracranial pressure. Papilledema was almost always associated with increased intracranial pressure. Papilledema and increased intracranial pressure occur more frequently with renal failure but are also found in cases in which renal function is normal. Headache is more frequent in the presence of increased intracranial pressure and papilledema but occurs without either one. The authors' results indicate that lumbar drainage for relief of headache is not justified. Increased intracranial pressure seems more often associated with high diastolic blood pressure, but the two are probably the result of some common factor and neither is caused by the other. The cause of increased intracranial pressure is not accounted for in 50 per cent of the author's cases which have neither renal insufficiency nor increased venous pressure.

Excretion of Xylose.—Fishberg and Friedfeld use the excretion of xylose as an index of renal function. On ingestion of 50 Gm. of xylose with limited fluid intake, the intact kidney is able to concentrate the xylose of 2.5 per cent within two hours and excretes 25 per cent of the total given within twenty-four hours. Damaged renal function is manifested by concentrations as low as 0.1 per cent and total excretions as low as 1 Gm. The curve of nonfermentable reducing substance in the blood approaches its normal value after five hours with intact kidney function, while in patients with impaired renal function the curve of the nonfermentable reducing substance continues upward so that values of 100 mg. per hundred cubic centimeters and more are encountered. The authors suggest the possibility of the use of xylose for the determination of blood volume and in the quick diagnosis of the functional integrity of single kidneys for surgical purposes.

Hypoglycemia Following Ingestion of Dextrose.—McClellan and Wardlaw made observations of the respiratory metabolism of a patient who on three different occasions developed symptoms of hypoglycemia about four and one half hours after the ingestion of 100 Gm. of dextrose. A review of the conditions that may produce hypoglycemia is presented. In the patient studied, a depression of the blood sugar to the level that resulted in symptoms occurred twice as a result of excessive oxidation of carbohydrate, and once as a result of excessive storage. The blood sugar time curves of five patients were studied and wide variations were found, which depended largely on the diet which the individuals had previously received. The authors believe that the interpretation of every blood sugar time curve should be based on a knowledge of the previous diet.

Desiccated Hog Stomach and Blood Sugar.—Goldhamer states that, in pernicious anemia in relapse, the blood sugar values are usually within the upper limits of normal. The decreased blood sugar values in the beginning of a remission occur at the time of the increase in the percentage of immature red blood cells present in the peripheral circulation. The blood sugar level reaches its lowest value at a time corresponding with the peak of the reticulated red blood cell percentage rise. In early remission the blood sugar level may fall as low as 61 mg. per hundred cubic centimeters. Almost all the values observed by the author were within the lower limits of normal. The onset of hunger symptoms in early remission may be directly associated with the decrease in the blood sugar level, the result of increased metabolic activity of the marrow, the immature red blood cells, or both. With general improvement, the blood sugar values increase and maintain themselves at a level not quite as high as their original one. Desiccated hog stomach has no specific insulin-like properties when taken by mouth. The immediate effect following ingestion of 40 Gm. is a slight increase in the blood sugar value for about half an hour, with a gradual return to its original level.

Journal of Experimental Medicine, Baltimore

55: 683-828 (May 1) 1932

*Maintenance of Normal Plasma Protein Concentration in Spite of Repeated Protein Loss by Bleeding. C. W. Barnett, R. B. Jones and R. B. Cohn, San Francisco.—p. 683.
*Effects of Parathormone and Ammonium Chloride on Bones of Rabbits. H. L. Jaffe, A. Bodansky and J. E. Blair, New York.—p. 695.
Effect of Antitesticular Serum on Enhancement Value of Testis Extract. F. Duran-Reynals, New York.—p. 703.
Races That Constitute Group of Common Fibroblasts: 1. Effect of Blood Plasma. R. C. Parker, New York.—p. 713.
*Studies on Common Cold: V. Relationship of Pathogenic Bacteria to Upper Respiratory Disease in Infants. Y. Kneeland, Jr., and Caroline F. Dawes, New York.—p. 735.
*Cytologic Studies on Rheumatic Fever: I. Characteristic Cell of Rheumatic Granuloma. C. McEwen, New York.—p. 745.
Chemo-Immunologic Studies on Conjugated Carbohydrate-Proteins: VI. Synthesis of *p*-Aminophenol α-Glucoside and Its Coupling with Protein. W. F. Goebel, F. H. Babers and O. T. Avery, New York.—p. 761.
Id.: VII. Immunologic Specificity of Antigens Prepared by Combining α- and β-Glucosides of Glucose with Proteins. O. T. Avery, W. F. Goebel and F. H. Babers, New York.—p. 769.
Serologic Specificity of Peptides. K. Landsteiner and J. van der Scheer, New York.—p. 781.
Reactions of Rabbits to Intracutaneous Injections of Pneumococci and Their Products: VII. Relation of Hypersensitiveness to Lesions in Lungs of Rabbits Infected with Pneumococci. L. A. Julianelle and C. P. Rhoads, New York.—p. 797.
Corneal Reactions to Bacterium Granulosis and Other Micro-Organisms. P. K. Olitsky, R. E. Knutti and J. R. Tyler, New York.—p. 803.
*Purification and Concentration of Diphtheria Toxoid. A. Wadsworth, J. J. Quigley and Gretchen R. Sickles, Albany, N. Y.—p. 815.

Maintenance of Normal Plasma Protein Concentration.—Barnett and his associates describe experiments on five dogs, consisting in the daily removal of blood plasma in amount from 25 to 100 cc., the red cells being returned to the circulation in Locke's solution. In no case was there a significant drop in plasma protein concentration. They report a case of cirrhosis of the liver in which more than 10 Gm. of protein daily was lost in the ascitic fluid during a period of seven months without any lowering of plasma protein concentration. The results of the experiments and the observations in the case of cirrhosis of the liver indicate that the loss of considerable quantities of protein is not alone sufficient to produce lowering of the level of plasma protein, and they suggest that in nephritis of the degenerative type there may be an associated interference with the mechanism of regeneration.

Effects of Parathyroid Extract on Bones.—Jaffe and his associates report that a very large single dose of parathyroid extract produced rapid and extensive decalcification of the bones of a young rabbit. Gradually increased doses of the extract failed to produce significant changes in the bones of young and fully grown adult rabbits. Ammonium chloride, administered by stomach tube, was without effect on the bones when given to rabbits treated with the extract or to otherwise untreated rabbits. Calcium lactate did not promote the appearance of signs of overdosage of parathyroid extract in rabbits during treatment, nor were metastatic calcifications observed in the soft tissues after termination of the experiment. The rabbit is relatively highly resistant to the decalcifying effects of gradually increased repeated doses of parathyroid extract, and therefore is not satisfactory material for experimental studies of bone changes of chronic hyperparathyroidism. The appearance of actively transforming bones of a young growing rabbit, particularly at the sites of rapid growth, is not to be confused with the more severe fibrous processes produced by parathyroid extract in guinea-pigs, dogs and rats.

Common Cold.—Kneeland and Dawes record bacteriologic and clinical observations on respiratory disease in a semiisolated infant population over a period of two years. In two severe winter outbreaks of respiratory infection, a parallel rise in the carrier rate of pathogenic organisms was noted. The first autumn outbreak of colds seems to favor the dissemination of the pathogenic organisms. The relationship of colds to the severer infections is roughly reciprocal. Infants between 8 and 14 months of age are subject to the most severe infections. The number of infants showing positive skin reactions to products of pathogenic organisms increases during the winter months.

Cytologic Studies on Rheumatic Fever.—Scrapings of subcutaneous nodules from ten patients with rheumatic fever were examined microscopically by McEwen after they had been stained with supravital dyes. From the uniform results obtained, the following conclusions were drawn: 1. Supravital staining of cells from these lesions gives information unobtainable with ordinary histologic methods. 2. The scrapings show a great predominance of certain cells almost entirely devoid of phagocytic power and not characterized by the reactions with neutral red which distinguish monocytes, epithelioid cells and clasmatocytes. Hence they differ from the essential cells of the lesions of tuberculosis and experimental syphilis. These differences are probably of a functional and developmental rather than of a genetic nature. 3. The cells probably arise from the undifferentiated mesenchymal elements of loose connective tissue, although it is possible that endothelial cells take part in their formation in some instances. 4. Since there is little doubt that the subcutaneous rheumatic nodules are pathologically identical with rheumatic granulomas elsewhere in the body, these conclusions are considered applicable also to the Aschoff body cells of the myocardial submiliary nodules.

Diphtheria Toxoid.—By precipitation with acetone at 4 C., Wadsworth and his associates obtained a refined diphtheria toxoid as a dry powder, readily soluble in aqueous solutions. The powder itself appears to be stable. When dissolved in half the original volume of physiologic solution of sodium chloride the toxid remained stable, in the cold room, for a period of seven months. Only toxoids should be used which have been completely detoxified by the treatment with solution of formaldehyde. The formaldehyde is immediately and completely removed by precipitation with acetone. Filtration through a Mandler filter or the addition of a preservative did not appear to have any deleterious effect. Incubating at 39 C. and freezing for twenty hours did not impair its activities. The flocculating value of the purified toxoid containing phenol was almost completely destroyed by freezing, whereas it was unchanged when merthiolate was the preservative. Approximately 62 per cent of the nitrogen was eliminated in the process, with approximately 15 per cent loss in flocculating value. The flocculating values were nearly double those of the original material and thus corresponded with the concentration, which was one-half the volume. By this method, the antigenic activity of a toxoid below standard may be increased to a satisfactory standard. The antigenic activity of the refined product in the immunization of guinea-pigs may in general parallel its flocculating values, but the relation between the results of these tests may not be proportional nor constant. As an immunizing agent in the guinea-pig, the refined toxoid posseses an antigenic activity that is equal to, or greater than, that of the unconcentrated toxoid.

Journal of Infectious Diseases, Chicago

50: 281-376 (April) 1932

Respiratory Flora of Eskimos in Remote Northern Regions. J. R. Wells and P. Heinbecker, St. Louis.—p. 281.
Proteins of Ragweed Pollens. C. A. Johnson and B. Z. Rappaport, Chicago.—p. 290.
Standardization of Antimeningococcic Serum by Polysaccharide Precipitin Test. J. Zozaya, Glen Olden, Pa.—p. 310.
*Leukocyte Response in Man to Dick Toxin, with Especial Reference to Eosinophil Changes. S. L. Vaughan, Chicago.—p. 315.
*Blood Cultures in Rheumatic Fever. L. E. Cooley, Chicago.—p. 330.
Atypical Lactose-Fermenters Belonging to Genus Bacterium (Bergey): Cultural and Biochemical Reactions. J. A. Kennedy, Priscilla Lees Cummings and Norma Myers Morrow, Rochester, N. Y.—p. 333.
*Rat-Bite Fever Associated with Sporothrix. N. P. Anderson, Los Angeles, and Bertha Kaplan Spector, Chicago.—p. 344.
Dissociation in Streptococcus Scarlatinae. Edna Delves, Chicago.—p. 350.
Dissociation of Streptococci. L. E. Cooley, Chicago.—p. 358.
Antigenic Properties of Rabies Virus. L. C. Havens and Catherine R. Mayfield, Montgomery, Ala.—p. 367.

Leukocyte Response in Man to Dick Toxin.—Vaughan describes an experiment in which the leukocytes of the circulating blood of human subjects were studied before and after the injection of immunizing doses of Dick toxin. There were twenty-one persons in the group, of whom eighteen had previously reacted positively to the Dick skin test and three negatively. As controls, a group of eight persons given injections of diphtheria toxoid, including seven who gave positive reactions and one who gave a negative reaction to the Schick test, and a group of four persons who were not subjected to injections were examined. The results of preliminary counts made on the entire series corresponded closely with those generally accepted as normal. Following the first injection a slight leukocytosis was observed in both groups at the end of four hours, which was still present the following day but had disappeared within four days. The change was due, chiefly to an absolute increase in the number of polymorphonuclear neutrophil cells, the lymphocytes remaining at approximately the same absolute level. A preliminary leukopenia was observed in the group given injections of diphtheria toxoid. The basophils and large mononuclears reacted in a manner contrary to that of the neutrophils, with a conspicuous diminution in the average percentage following the injection of the toxin. Individual variations were great. Definite changes were noted also in the number of eosinophils in which a prompt and often progressively increasing rise was seen in the majority of the group given injections of Dick toxin, and a delayed rise in the others of the group. Three persons failed to show noteworthy changes. Analysis of these results showed that the eosinophil reaction had no apparent relation to the intensity of the skin test, to the rash or to the history of an attack of scarlet fever.

Blood Cultures in Rheumatic Fever.—Cooley made blood cultures on twenty-five children between the ages of 6 and 14 who had rheumatic fever. All the cultures were made as early in the disease as possible. It was thought that positive results might be obtained more readily in cultures of the blood of children who were having rheumatic fever for the first time. A history of a previous attack was not obtainable from fourteen of the patients. Each patient had joint involvement at the time the cultures were taken, and each patient had a temperature of at least 100.5 F. (38 C.). Control cultures were made from the blood of ten nonfebrile patients. Brain broth cultures of the blood of the children with rheumatic fever remained sterile for one month. Twelve bottles of broth inoculated with the blood of the first six patients and ten bottles of broth that contained serum remained sterile for one month. Thirty-four of the remaining forty bottles of broth remained sterile for one month. Staphylococci or molds were found in the remaining six bottles. Eighteen of the twenty bottles of broth in the control group remained sterile for one month. Staphylococci were found in the other two bottles.

Rat-Bite Fever and Sporothrix.—Anderson and Spector report a typical case of rat-bite fever, the evidence indicating that a sporothrix-like organism played a part in the attack. As far as the authors know, this is the first time that such an organism has been isolated from a patient with rat-bite fever.

Kentucky Medical Journal, Bowling Green

30: 237-302 (May) 1932

Clinical and Surgical Aspects of Acute Intestinal Obstruction. J. H. Blackburn, Bowling Green.—p. 242.
Reasons Why Thyroidectomy Should Not Be Postponed. J. F. van Meter, Lexington.—p. 249.
Contraception: Review of Indications and Technic. S. D. Breckenridge, Lexington.—p. 253.
Eclampsia: A Preventable Disease. E. Speidel, Louisville.—p. 257.
Head Colds. H. H. Roberts, Georgetown.—p. 261.
Some Points in Treatment of Fractures of Extremities. E. W. Northcutt, Covington.—p. 265.
Gastro-Intestinal Hemorrhage: Report of Three Cases. J. A. O. Brennan, Louisville.—p. 269.
Intussusception in Child Four Months Old. J. W. Bruce, Louisville.—p. 271.
Trichiniasis: Report of Case. H. S. Frazier, Louisville.—p. 272.
Amidopyrine Analgesia With and Without Magnesium Oxide. W. G. Weston, Louisville.—p. 272.
Lead Poisoning: Report of Case. J. W. Bruce, Louisville.—p. 274.
Blindness Following Measles, Continued Report of Case. S. G. Dabney, Louisville.—p. 275.
Carcinoma of Cervix, Impeding Labor: Report of Case. J. G. Sherrill, Louisville.—p. 277.
Paget's Disease of Breast: Report of Two Cases. W. Frank, Louisville.—p. 278.
Surgery of Common Duct. F. P. Strickler, Louisville.—p. 280.
Rabies. R. P. Ball, Harlan.—p. 286.
Pathology of Rabies: Case Report. A. J. Miller, Louisville.—p. 288.
Interesting Case of Chorea. J. H. Pritchett, Louisville.—p. 291.
Unusual Fractures. F. P. Strickler, Louisville.—p. 293.
Interlobar Pleurisy with Serous Effusion. O. O. Miller, Louisville.—p. 295.

Laryngoscope, St. Louis

42: 233-334 (April) 1932

Regulation of Eye Positions and Movements Induced by Labyrinth. F. Lorente de No, St. Louis.
New Tonsil Suture Instrument. G. Ainslie, Portland, Ore.—p. 333.

Michigan State M. Society Journal, Grand Rapids

31: 301-362 (May) 1932

The Super-University. A. G. Ruthven, Ann Arbor.—p. 301.
Cancer Control in Michigan. F. L. Rector, Evanston, Ill.—p. 305.
Rôle of Amino-Acids in Animal Organism: II. Physiology of Amino-Acids: Beaumont Foundation Lecture II. H. B. Lewis, Ann Arbor. —p. 307.
Service for Ambulatory Diabetic: D. W. McLean, with assistance of Eleanor J. Ford and Martha A. Alderman, Detroit.—p. 314.
Retinal Tears at Ora Serrata. P. C. Kronfeld, Chicago.—p. 319.
Diffuse Hypertrophy of Breasts: Preliminary Case Report. M. Burnell, Flint.—p. 324.
Pigmentation and Keratosis Following Use of Arsenic: Report of Case. N. A. Aronstam, Detroit.—p. 326.
Brain Abscess and Lateral Sinus Thrombosis as Complication in Mastoiditis: Report of Two Cases. A. P. Wilkinson, Detroit.—p. 327.
Photographs of Fundus Oculi. F. L. Ryerson, Detroit.—p. 330.
Traumatic Rupture of Pancreas: Report of Case. H. K. Ransom, Ann Arbor.—p. 332.
Famous Men in Medical History: Samuel D. Gross. L. D. Dickey. —p. 334.
Michigan's Department of Health. C. C. Slemons, Lansing.—p. 338.

Military Surgeon, Washington, D. C.

70: 427-528 (May) 1932

Report of Sixth International Congress of Military Medicine and Pharmacy. W. S. Bainbridge.—p. 427.
*Chronic Bismuth Intoxication. C. O. Leff.—p. 456.
Care and Evacuation of Fracture Cases (Battle Casualties). N. T. Kirk.—p. 462.
Eight Years of Organized Reserve Training. G. A. Skinner.—p. 472.
Transportation of Household Goods by Auto Van. H. C. Michie.—p. 480.
Tourist Camps. W. O. Wetmore.—p. 483.

Chronic Bismuth Intoxication.—Leff divides the treatment of bismuth intoxication into three distinct phases, as follows: 1. Immobilization of bismuth. This part of the treatment has to do with the alleviation of acute symptoms. This is accomplished by producing a negative balance in the body by the administration of calcium salts. All patients are given an initial dose of 25 cc. of a 2 per cent solution of calcium chloride intravenously or, when the veins are not accessible, 10 cc. of 10 per cent solution of calcium gluconate. This is usually repeated for two successive days if the symptoms warrant repeated injections. In cases in which the abdominal pains, colic or diarrhea predominate, the calcium injections may be given up to three times daily for a few days. In addition, tincture of belladonna is administered orally and the diet is restricted to milk 6 ounces (180 cc.) and cream 2 ounces (60 cc.) every three or four hours. In cases of milder degree and those cases which have improved on the milk and cream mixture, a calcium positive diet is given, consisting of milk, cream 5 per cent, vegetables, eggs, jello and ice cream. In all cases from 50 to 100 grains (3.25 to 6.5 Gm.) of calcium lactate is administered orally every day as the case may need. In cases without diarrhea or nephritis, the cathartic of choice is magnesium sulphate. Otherwise less drastic methods of bowel evacuation are employed. The nephritic cases after the alleviation of the acute symptoms are treated as acute nephritic patients. The average immobilization treatment lasts about ten days. Relief from symptoms usually begins in about two days in the moderate cases. 2. Demobilization of bismuth. When acute symptoms have subsided for a reasonable length of time, the patient is debismuthized. The aim is to change the hydrogen ion concentration of the blood stream so that small quantities of bismuth may be thrown into the circulation and eliminated. The patients who showed no signs of an initial nephritis are given 10 cc. of dilute phosphoric acid four times daily in a suitable vehicle. The diet is an acid-forming one. The patients who showed an initial nephritis are given sodium bicarbonate with great caution. The initial dose is about 5 Gm. daily and this is gradually increased until 20 Gm. is administered daily. The diet is either neutral or alkali producing. Patients must be carefully watched for symptoms of acidosis or alkalosis and remedial treatment instituted when such symptoms occur. When the urine examination shows that the elimination of bismuth is becoming increasingly difficult, further elimination is not attempted. The patient is permitted to return to his customary mode of living or a modified one as the case calls for, and the recurrence of symptoms is watched. 3. Supportive treatment. During the demobilization stage, the patient is treated for the secondary anemia and the loss of general health. For the former, iron compounds are administered, intramuscularly, twice weekly. For the latter, a mixture consisting of 1 drachm (4 Gm.) of lecithin to 6 ounces (180 cc.) of cod liver oil is given twice daily in tablespoon doses. Hexylresorcinol, 2 per cent solution in olive oil, one tablespoonful every four hours, has proved beneficial in refractory cases of nephritis.

Missouri State M. Assn. Journal, St. Louis

29: 193-238 (May) 1932

*The Rationale of Treatment in Some Acute Conjunctival Infections. H. J. Howard, St. Louis.—p. 193.
Sodium Amytal in Treatment of Paresis: Preliminary Report. R. M. Fellows, Galveston, Texas.—p. 194.
Arthritis: Etiologic Classification and Points in Differential Diagnosis. D. E. Kauffman, St. Louis.—p. 196.
Postnatal Care. G. D. Royston, St. Louis.—p. 198.
Some Clinical Observations on Measles Epidemic of 1931 in St. Louis. J. Zahorsky, St. Louis.—p. 205.
Economic Importance of Efficient Medical Service to Public and the Railroad. E. P. North, St. Louis.—p. 207.

Acute Conjunctival Infections.—According to Howard, it is doubtful whether the common antiseptic solutions have a bactericidal effect on the causative agent of an acute conjunctivitis, except during the few hours immediately following the inoculation. Since there is no evidence of infection during the first day, such treatment obviously would not be instituted except in those rare cases in which there is definite knowledge of an infection. The use of strong antiseptic solutions during the purulent stage of an acute conjunctivitis also seems to be inadvisable, first, because they have no effect on the bacteria which have already invaded the cellular layers; secondly, because they probably interfere with the defensive mechanism of the tissue, and, thirdly, because they subject the patient to unnecessary distress. During this stage, frequent irrigations with boric acid or physiologic solution of sodium chloride are probably more efficacious than instillations of even mild germicidal solutions. After the bacteria have disappeared—a phenomenon that varies in point of time with the different organisms—only soothing lotions, preferably physiologic solution of sodium chloride, should be used to keep the culdesacs clean. One cannot judge from the appearance of an eye whether or not the invading bacteria have disappeared. A knowledge of the type of organism that caused the infection should make it possible to predict the approximate time of its disappearance. Otherwise, frequent bacteriologic examinations will have to be made. The presence of bacteria in scrapings and smears does not necessarily establish the diagnosis unless the organisms are found on epithelial cells in stained specimens. Professional care of cases of acute conjunctivitis is important in order that measures may be taken to prevent extension of the infection to the second eye, should it still be uninvolved, and also to other persons in the household. One should watch for corneal complications, which in rare instances do occur.

Nebraska State Medical Journal, Lincoln

17: 177-220 (May) 1932

*One Sided Branch Block: Review of Forty-Seven Cases. A. L. Smith, Lincoln.—p. 179.
Carcinoma of Oral Cavity. A. F. Tyler, Omaha.—p. 185.
Spinal Anesthesia: Part I. C. H. Arnold, Lincoln.—p. 189.
Ureteral Calculi: Treatment and Results in One Hundred Consecutive Cases. A. D. Munger, Lincoln.—p. 192.
*Contact Glasses. J. H. Judd, Omaha.—p. 195.
Agranulocytosis Angina. J. Buis, Pender, and N. E. Hansen, Emerson. —p. 197.
Urethral Caruncle. D. T. Quigley, Omaha.—p. 201.
Drug Idiosyncrasy Due to Phenyl Group. E. S. Maloney, Omaha. —p. 205.
Familial Icterus Gravis of the New-Born: Case Report. J. Kuncl, Alliance.—p. 206.
Simplified and Improved Method for Radical Amputation of Breast. V. L. Siman, Norfolk.—p. 207.

One Sided Branch Block.—Smith reports that in a series of forty-seven cases with one sided permanent branch block, forty-four of the patients died within eighteen months after coming under observation. Three are still living and have survived five, four and three years, respectively. One sided branch

block is a serious disease and in a large majority of cases carries with it a bad prognosis, since at the best the patient will seldom live over eighteen months. There is no clinical method by which the diagnosis can be made; since it depends entirely on the use of the electrocardiograph, it is probably often overlooked. It is a disease of advanced years. Since the prognosis in one sided branch block is so serious and since it is the result of heart disease it seems necessary, besides a complete physical examination, to employ the electrocardiograph in every case of heart disease.

Contact Glasses.—According to Judd, contact glasses are probably of greatest value in correcting visual defects in cases of irregular corneal astigmatism, because with the corneal astigmatism nullified by the fluid meniscus, simple spherical corrections give improvement of vision unattainable in any other way. These glasses are also of use in cases of diffuse interstitial haze, scattered nebulae and definite keratinization of the cornea. In albinism, especially when they are tinted, they often relieve certain symptoms such as defective vision, photophobia and even nystagmus. They have been used with good results in many varieties of keratitis: inflammatory, neuroparalytic and degenerative. A continuous application to corneal ulcers can be made by smearing the inner surface of the glass with an ointment. In plastic operations of the cornea the glasses are valuable for maintaining grafts in position. They are not suitable for squint cases, although theoretically prisms could be incorporated in the glass. They are of value in certain sports, such as swimming, in which glasses cannot well be worn. In speed racing on land, sea or air, they protect the cornea from wind, and, when tinted, from glare, with the added advantage that fog or rain cannot condense on them. In certain instances they cannot be worn, for some eyes are so deformed that a spherical glass cannot adhere to them and some patients are so sensitive that they cannot get accustomed to wearing them. The author believes that while the use of contact glasses may be regarded as still in the experimental stage, they certainly offer many possibilities and in the future will no doubt find increased application.

New England Journal of Medicine, Boston

206: 875-924 (April 28) 1932

*Transplantation of Ureters into Rectum: Report of Five Cases. F. H. Lahey, Boston.—p. 875.

Problems and Opportunities in Public Health and Relation of Practicing Physicians Thereto. S. H. Osborn, Hartford, Conn.—p. 877.

Reported Gonorrhea and Syphilis in Massachusetts in 1931. N. A. Nelson and G. W. Anderson, Boston.—p. 882.

*Acute Anterior Poliomyelitis: Treatment of Bulbar and High Spinal Types. J. L. Wilson, Boston.—p. 887.

Use of Rabbit in Aschheim-Zondek Test for Pregnancy. W. H. Grant, N. Zibel and H. E. MacMahon, Boston.—p. 893.

The Springfield Isolation Hospital. A. G. Rice, Springfield, Mass.—p. 898.

Progress of Gastro-Enterology in 1931. A. E. Austin, Boston.—p. 901.

Transplantation of Ureters into Rectum.—Lahey believes that, technically, bilateral rectal transplantation of the ureters at one sitting with indwelling tubes is a satisfactory and reasonably safe procedure. The rectum serves as a highly satisfactory substitute for the urinary bladder as to the matter of storage and of warning as to emptying time. Total removal of the bladder following transplantation of both ureters into the rectum is not a difficult operation in the female particularly and makes cure of carcinoma of the bladder possible when it can be diagnosed early. Transplantation of the ureters offers the opportunity to relieve many patients with other troublesome lesions of either pain or inconvenience from urinary leakage by substituting the rectum for the bladder as a urinary reservoir.

Acute Anterior Poliomyelitis.—From experience with ninety patients with either the "bulbar" form of poliomyelitis or paralysis of the intercostal muscles or the diaphragm, Wilson has derived a program for the symptomatic treatment of the various types of respiratory disturbances occurring in this disease. Three possible mechanisms were distinguished which brought about respiratory failure. The first, paralysis of the intercostal muscles or of the diaphragm; the second, in patients with pharyngeal paralysis, excessive fatigue caused by continual interference with inspiration by unswallowed material in the pharynx or to actual aspiration of this material; the third, direct involvement of the respiratory "centers." Twenty-three patients with paralysis of the respiratory muscles were treated in the Drinker respirator. Three died, all of pneumonia. Features believed to be of great importance in the treatment of these patients were (1) early, uninterrupted and prolonged use of the respirator, to avoid dyspnea or fatigue, especially in the acute stage of the disease; (2) painstaking care of the patients in the respirator in respect to frequent change in position, cleanliness of the skin and care of the bowels, and, for patients who had also pharyngeal paralysis, postural drainage and administration of parenteral fluids. Forty patients with undoubted pharyngeal paralysis were treated. Therapeutic details of greatest value were (1) avoidance of vomiting by keeping the stomach empty during the febrile period and until hunger returned, (2) postural drainage, (3) aspiration of the throat, (4) adequate administration of parenteral fluids, and, (5) in a few selected cases, tracheotomy. Twenty patients with probable involvement of the respiratory centers or with sudden respiratory failure following an attack of choking were treated the Drinker respirator. Thirteen of these patients died. The author believes that the respirator was an important factor in the survival of the others.

Porto Rico J. Pub. Health & Trop. Med., San Juan

7: 287-400 (March) 1932

Skin Reactions to Necator Americanus in Persons Infected with Common Intestinal Parasites. G. W. Bachman and R. Rodriguez-Molina, San Juan.—p. 287.

Filariasis in Porto Rico. W. A. Hoffman, R. A. Marín and A. M. B. Burke, San Juan.—p. 321.

An Epidemiologic Study of Hookworm Disease in Rural Coastal Plain and City Area of Porto Rico. S. Daengsvang, Baltimore.—p. 359.

Brief Summary of Observations on Flora of Normal Throats in San Juan, Porto Rico, June, 1929-1930. P. Morales-Otero, San Juan.—p. 377.

Notes on Life History of Anopheles Albimanus and Grabhamii. W. C. Earle, San Juan.—p. 381.

Public Health Reports, Washington, D. C.

47: 987-1041 (April 29) 1932

Typhus Fever: Multiplication of Virus of Endemic Typhus in Rat Flea Xenopsylla Cheopis. R. E. Dyer, W. G. Workman, E. T. Ceder, L. F. Badger and A. Rumreich.—p. 987.

Sickness Among Male Industrial Employees During Last Three Months of 1931, and Summary of Sickness Frequency by Years Since 1920. D. K. Brundage.—p. 995.

Surgery, Gynecology and Obstetrics, Chicago

54: 733-860 (May) 1932

Histopathology of Uterus in Relation to So-Called Essential or Idiopathic Uterine Bleeding. Mary Spivack, Chicago.—p. 733.

*Toxic Neuronitis of Pregnancy: Clinicopathologic Report. N. J. Berkwitz and N. H. Lufkin, Minneapolis.—p. 743.

Pathologic Anatomy of Testicular Torsion: Explanation of Its Mechanism. M. Muschat, Philadelphia.—p. 758.

Observations on Response of the Same Chimpanzee to Dial, Amytal and Nembutal, Used as Surgical Anesthetics. J. F. Fulton, New Haven, Conn., and A. D. Keller, Tuscaloosa, Ala.—p. 764.

*Solution of Choice in Proctoclysis. G. L. Perusse, Jr., Chicago.—p. 770.

*Incidence of Tetanus Bacilli in Stools and on Regional Skin of One Hundred Urban Herniotomy Cases. K. A. Meyer and Bertha Kaplan Spector, Chicago.—p. 785.

*Etiology of Placenta Praevia. B. Solomons, Dublin, Ireland, and H. E. Canter, Pittsburgh.—p. 790.

Radium Treatment of Cancer of Corpus Uteri. I. de Büben, Budapest, Hungary.—p. 791.

An Easy Operation for Removal of Cancer of Rectum in Female. L. E. Burch, Nashville, Tenn.—p. 794.

*Six Years of Tannic Acid Treatment of Burns. D. M. Glover, Cleveland.—p. 798.

Technic of Parathyroidectomy. M. Ballin, Detroit.—p. 806.

Tumors of Mesentery. F. W. Rankin and S. G. Major, Rochester, Minn.—p. 809.

Nephrostomy: Indications and Technic. H. Cabot and W. W. Holland, Rochester, Minn.—p. 817.

Nupercaine Spinal Anesthesia. E. E. Arnheim and S. Mage, New York.—p. 826.

Jaundice Caused by Pancreatic Lesions. W. Walters and E. A. Dehne, Rochester, Minn.—p. 832.

Basal Cell Carcinoma of Vulva. L. N. Claiborn and H. B. Holsinger, New Haven, Conn.—p. 836.

*New Method of Treating Breast Abscesses. J. E. Hobbs, St. Louis.—p. 839.

Modification of Kimpton-Brown Method of Whole Blood Transfusion. L. Brooks, San Francisco.—p. 842.

Toxic Neuronitis of Pregnancy.—Berkwitz and Lufkin call attention to the fact that paralysis resulting from toxemia of pregnancy has been reported under such names as peripheral neuritis, polyneuritis and toxic myelitis of pregnancy. They use the name toxic neuronitis of pregnancy, since the nerve cells are involved as well as the peripheral nerves. Forty-eight cases

of this condition were compiled from the literature, six of them having reports of necropsy observations. In addition to these, the authors added four of their own cases, with necropsy reports of three. This condition usually develops in the first trimester and is usually preceded by uncontrollable vomiting. The lower extremities are usually involved first. Later the paralysis becomes more extensive. Mental symptoms of a delirious and confusional nature appeared in about two thirds of the cases. Sphincter disturbances and tachycardia were present in over half of the cases. Optic neuritis was present in the four cases observed by the authors, although it was mentioned in only a few of the cases found in the literature. The results of chemical examination of the blood and the urine were negative in all the reported cases. The gross observations at necropsy also were essentially negative. In the authors' three cases in which necropsies were performed, the liver and kidney showed, microscopically, a mild cloudy swelling. The microscopic study of the nervous system gave observations characterized by degenerative changes of the peripheral nerves and anterior horn cells. Petechial hemorrhages were found in a number of the sections of the brain and spinal cord. This condition has been attributed to a form of autointoxication. Its appearance is similar to a severe form of the nausea and vomiting (morning sickness) that occurs in about 50 per cent of pregnancies. The weakness of the patient from paralysis may be easily confused with weakness due to inanition resulting from hyperemesis, and without careful neurologic examination the condition may not be recognized. The histories of the cases studied indicate that interruption of pregnancy as soon as definite neurologic symptoms appear is the most satisfactory treatment. The mortality of this condition has been about 25 per cent, but it is believed that this figure can be greatly reduced if the condition is recognized and treated early. Although toxic neuronitis of pregnancy is comparatively rare, its serious character demands attention and emphasizes the need of a thorough neurologic examination of pregnant women with hyperemesis.

Solution of Choice in Proctoclysis.—Perusse reports that of twenty-one solutions used in proctoclysis which he investigated, 1 per cent dextrose solution was the most efficient. It may be combined with 0.5 per cent sodium bicarbonate with a somewhat lowered rate of absorption, but a possible greater effect in combating acidosis. Of the inorganic salts studied, 0.5 per cent sodium bicarbonate solutions were superior to others in rate of absorption. Isotonicity is not the ideal concentration for a given solution, for by maintaining such a concentration one is neglecting one of the best properties of the intestine; namely, its action as a semipermeable membrane. Hence if one introduces a solution definitely hypotonic to the blood it is more readily absorbed, following the laws of osmosis. In regard to the dextrose solutions, one may consider that the selective activity of the intestinal cells comes into play.

Incidence of Tetanus Bacilli in Stools.—According to Meyer and Spector, the stools of healthy individuals not infrequently contain tetanus organisms. A fair percentage of individuals harbor on the skin adequate tissue devitalizing organisms (Bacillus welchii in combination with pathogenic aerobic bacteria) even after the usual routine surgical preparation. The occurrence of postoperative tetanus in cases in which exogenous sources (catgut, and so on) can be excluded are to be traced to organisms derived from the intestinal tract. Stool and regional skin cultures should constitute part of the routine search for the source of contamination in all cases of postoperative tetanus. The incidence of healthy carriers of the tetanus bacillus is relatively high among the rural population and relatively low among urbanites (1 per cent in Chicago).

Etiology of Placenta Praevia.—From animal experiments and from observations on the nonpregnant uterus, Solomons and Canter believe that the cause of placenta praevia lies in a defective or deficient production of the decidua formation of the upper portion of the uterus, with a normal or sufficient amount of decidua in the lower portion of the uterus. When the fertilized ovum, therefore, enters the uterus, it will seek the place where it can obtain the greatest amount of nourishment. Since the upper portion is deficient or poorly developed to receive the tenant, it will be attracted to the greatest amount of decidua reaction—in the lower portion of the uterus.

Tannic Acid Treatment of Burns.—Glover describes a method of management of severe burns with tannic acid. The principal features of the method are as follows: Burns should be regarded as emergencies and treatment started at the earliest moment. Burned areas are sprayed with a 5 or 10 per cent tannic acid solution, while the patient remains under a heated cradle. An adequate amount of fluid is administered to combat dehydration; at the same time, care is taken not to overload the circulation with fluid. Continuous dressings wet with surgical solution of chlorinated soda are used to hasten separation of the coagulum during the "secondary toxic stage," which is described. Early skin grafting is recommended to prevent development of a profound secondary anemia, to diminish danger of late septic complications, and to prevent unnecessary scarring or contracture.

New Method of Treating Breast Abscesses.—Hobbs believes that the occurrence of breast abscesses can be prevented in great part by suitable prophylactic measures, but, owing to neglect by the attending physican or mother, breast abscesses still occur frequently during the lactation period. It is important to establish proper drainage with minimum scarring of the breast. This can be done by making a stab wound large enough to accommodate a rubber tube one half inch (1.3 cm.) in diameter, which is made secure by suturing to the skin. Other drains and counterdrainage will be unnecessary. A Dakin tube is inserted through the drainage tube and the cavity is irrigated with solution of sodium hypochlorite, which is a disinfectant, destroyer of necrotic material, stimulator of granulation tissue, and deodorant. It does not harm healthy tissue. Petrolatum gauze is a dressing that can be removed and applied without pain to the patient. It protects the skin from the irritating and macerating effect of the discharge. It is imperative that this or some other oily dressing be used when the cavity is irrigated with sodium hypochlorite. A gauze roll makes an excellent binder, for it gives support, effects compression, and serves as a protective dressing.

Virginia Medical Monthly, Richmond

59: 65-128 (May) 1932

Study of Lung Involvement in Human Ascariasis. F. J. Wampler and L. E. Sutton, Jr., Richmond.—p. 65.
*Difficulties Encountered in Etiologic Diagnosis of Aortic Regurgitation. A. D. Hart and J. E. Wood, Jr., University.—p. 72.
Treatment of Postoperative Intestinal Obstruction. C. R. Robins, Richmond.—p. 77.
Ward Walk: Discussion of Some Clinical Problems. M. J. Payne, Staunton.—p. 82.
Repair of Bilateral Harelip. J. G. Lyerly, Richmond.—p. 85.
Intramuscular Injection of Liver Extract in Cases of Pernicious Anemia. J. L. Thompson, Washington, D. C.—p. 88.
Trauma of Abdomen. F. S. Johns, Richmond.—p. 92.
Early Diagnosis of Tuberculosis in Children and Young Adults. C. W. Scott, Port Republic.—p. 94.
Physical Factors in Coronary Occlusion. J. M. Hutcheson, Richmond.—p. 100.
Birth Control. W. M. Bowman, Petersburg.—p. 102.
Epidemic Encephalitis. J. R. Gill, Petersburg.—p. 106.
Don'ts in Dermatology. J. Beverly DeShazo, Ridgeway.—p. 110.

Etiologic Diagnosis of Aortic Regurgitation.—One hundred and twenty-five patients with pure aortic regurgitation were studied clinically by Hart and Wood, with particular reference to the cause of the underlying valve defect. In sixty-nine cases (55 per cent) the aortic lesion was thought to be due to syphilis; in ten (8 per cent), to previous rheumatic infection. In forty-six instances (37 per cent), a causative factor could not be accurately determined. The value of an etiologic diagnosis in cases of aortic regurgitation cannot be doubted. The importance of a careful history is emphasized as an indispensable factor in the majority of syphilitic and rheumatic cases. Physical examinations should be completed with particular regard to the presence of conditions that might be associated etiologically with the aortic defect. Exclusive of the serologic tests for syphilis and roentgen studies of the heart, further procedures are of little value. At least one third of all cases of pure aortic regurgitation present difficulties in diagnosis which are as yet not overcome by known clinical or postmortem methods of study. By applying the ordinary methods of examination, the average physician may effect an etiologic analysis of this disease in a measure equal to that attained by more highly trained workers.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

7: 59-103 (April) 1932

Kala-Azar in Children of North China. Annie V. Scott.—p. 59.
*Further Note on Gastromegaly from Duodenal Ileus. R. Miller and H. C. Gage.—p. 65.
Multiple Cases of Erythema Nodosum in a Class of School Children. A. Landau.—p. 77.
*Extent of Pancreatic Lesions in Diabetic Children. H. E. W. Roberton. —p. 83.
Difficult and Defective Children. A. D. Fordyce.—p. 89.
Urinary Obstruction: Four Cases. A. V. Neale.—p. 97.

Gastromegaly from Duodenal Ileus. — Miller and Gage present two additional pieces of evidence to support their view that chronic (congenital) duodenal ileus or arteriomesenteric compression is the cause of a syndrome in children in which enlargement and hypertrophy of the stomach (gastromegaly) is the most prominent physical sign. First, they record the case of a baby who died on the ninth day of life with symptoms suggestive of duodenal atresia, the postmortem examination revealing a definite degree of obstruction of the duodenum as it passed under the root of the mesentery. Second, they reproduce roentgenograms taken in the case of a girl aged 8 years in which the symptoms, signs and reaction to treatment are the same as in their previously reported cases. The roentgenograms show the duodenum quite clearly and suggest the presence of obstruction in its third part. The authors discuss the arguments against their hypothesis, which are based on the practical difficulty of demonstrating duodenal ileus roentgenologically and by other means, and they dismiss them on the grounds that the same difficulties are encountered even in the examples which are verified as correct by operation or postmortem examination.

Pancreatic Lesions in Diabetic Children. — Roberton calls attention to the fact that, during the last few years, children with diabetes have tended to require progressively more insulin until they require 1 unit for each 1.5 Gm. of potential carbohydrate in the diet. He suggests that at this stage they are not secreting an appreciable amount of insulin, because (1) experiments show that 1 unit corresponds to about 1.5 Gm. of dextrose and (2) exhaustion of the pancreas is the simplest explanation of the disease ceasing to be progressive at this stage.

British Journal of Surgery, Bristol

19: 523-684 (April) 1932

Diaphragmatic Hernia. J. B. Hume.—p. 527.
*Treatment of Dupuytren's Contracture: Review of Thirty-One Cases, with an Assessment of Comparative Value of Different Methods of Treatment. A. A. Davis.—p. 539.
*Ureterocele: Some Observations Based on Investigation and Treatment of Four Cases. J. C. Ainsworth-Davis.—p. 548.
*Adrenogenital Syndrome Associated with Cortical Hyperplasia: Results of Unilateral Adrenalectomy. L. R. Broster and H. G. Hill, with Histologic Notes by J. G. Greenfield.—p. 557.
Embryonic Epithelial Rests in Pituitary. W. Susman.—p. 571.
*Isolated Fracture of Carpal Semilunar and Kienböck's Disease. T. B. Mouat, J. Wilkie and H. E. Harding.—p. 577.
Hydatid Pneumothorax. L. Barnett.—p. 593.
Some Complications of Traumatic Dislocation of Hip Joint. H. Platt. —p. 601.
Parathyroid Tumor Associated with Fibrocystic Disease: Case. G. Gordon-Taylor and P. Wiles, with Pathologic Account by S. L. Baker. —p. 606.
Incidence of Anaerobic Infections in Gallbladder. G. Gordon-Taylor and L. E. H. Whitby.—p. 619.
Further Studies in Intravenous Pyelography. R. J. Willan and J. H. Saint.—p. 622.
The Sympathetic in Acute General Peritonitis: Clinical Study with Observations on Treatment. J. J. Robb.—p. 634.
Rapidly Growing Carcinoma in Neck, Arising in a Parathyroid Rest: Case. L. W. Price and G. T. Mowat.—p. 645.
Operative Treatment of Elephantoid Scrotum. W. K. Connell.—p. 651.

Dupuytren's Contracture.—Davis calls attention to the fact that the etiology of Dupuytren's contracture remains obscure. Mechanical methods of treatment, including fibrolysin and radium and roentgen therapy, are useless, with the proviso that further experience may conceivably make radium a safe and effective cure. Operation of some type remains the method of choice in treatment. The author suggests that as the results from even the most major operative procedures are far from satisfactory, the minor operation of multiple subcutaneous fascial division should be adopted, and repeated if necessary, in the average patient of the hospital class. In patients of the more leisured class, wide fascial excision with replacement of involved skin by a free full-thickness skin graft is probably most advisable, combined, if necessary, with Hutchinson's operation. When the best cosmetic result is desirable, e. g., in nonlaboring women and in men of the professional classes, Thiersch grafts may be substituted for the thicker one of full thickness. Implants of fat or fascia are theoretically undesirable and have not been uniformly successful in application.

Ureterocele.—According to Ainsworth-Davis, ureterocele is due to obstruction from a pin-hole ureteral orifice, which may be congenital or acquired, unilateral or bilateral. When diagnosed, it should be treated by surgical intervention to prevent renal destruction by back-pressure or by the occurrence of infection. Ureterocele can, and should, be dealt with by per-urethral methods, except in the presence of complications that require open operation. Diathermy applied by a cystoscopic electrode is the method of choice and is perfectly safe, provided the following rules are observed: 1. Coagulation should be effected well clear of the ureteral orifice and its papilla. 2. An attempt should be made to perforate the cyst wall at the time of treatment. 3. Should the papilla become involved by accident and the cyst be unperforated, inflammatory occlusion becomes almost a certainty, and a small area of the wall should be excised by cystoscopic scissors, or perforated by a cystoscopic knife.

Suprarenogenital Syndrome.—Broster and Hill performed unilateral suprarenalectomy in three cases representing three different types of the suprarenogenital syndrome associated with suprarenal cortical hyperplasia—namely, pseudohermaphrodism, virilism or hirsutism, and the Achard-Thiers syndrome (diabetes of fat bearded women). All three patients made complete recoveries and are in good health. In no instance were untoward postoperative symptoms observed, and the blood pressure did not vary during or after operation. The effects of unilateral suprarenalectomy on the main symptoms of the syndrome, the hypertrichosis, and sex changes were not the same in the three cases. In the late syndrome (suprarenal virilism) markedly beneficial results were obtained, but in the early form (pseudohermaphrodism) and in the Achard-Thiers type (probably a pluriglandular disturbance) no change in the symptoms was observed. The authors' experience would therefore suggest that unilateral suprarenalectomy is indicated in the late syndrome (virilism) due to suprarenal cortical hyperplasia, when the suprarenal lesion is mainly unilateral, but not in the other two forms.

Fracture of Carpal Semilunar and Kienböck's Disease.—Mouat and his associates emphasize the fact that fracture of the carpal semilunar is not uncommon, though often unrecognized, and the resulting local reaction is treated as a sprain, without sufficient immobilization. The process of repair in the damaged bone is retarded by the defective blood supply and the poor reactive powers of its cartilaginous covering. A slow progressive degeneration ("Kienböck's disease") with absorption of necrotic bone lamellae and fibrous replacement then takes place during a varying and often long quiescent interval, which is ultimately followed by deformation of the bone, with recurrence of the local symptoms and continued disability. A similar local reaction may result from repeated minimal occupational traumas and in exceptional cases may be caused by an attenuated infection.

British Medical Journal, London

1: 739-784 (April 23) 1932

*Injuries About the Elbow in Children. R. Jones.—p. 739.
*Treatment of Tetanus. L. Cole.—p. 743.
Endocrine Therapy in Dysmenorrhea. W. P. Kennedy.—p. 746.
Age Incidence of Seropositive Syphilis in Females. J. E. Nicole.—p. 749.
Case of Polycythemia Rubra Developing Anemia. R. Platt.—p. 750.
Intranasal Treatment by Ionization in Hay Fever, Vasomotor Rhinitis, and Ozena. P. Franklin.—p. 751.

Injuries About the Elbow in Children.—According to Jones, the serious complications of injuries about the elbow in children are ischemic contraction, nerve complications and myositis ossificans. Ischemic paralysis is a most serious complication and often starts with a dramatic onset. It may follow

any fracture of the elbow, most frequently supracondylar, or it may occur in a backward dislocation of the elbow. Experiments have confirmed clinical experiences that the condition is due to acute venous obstruction; it does not occur when obstruction is gradual. The calamity may be due to pressure from within, such as hemorrhage into the antecubital fossa, pressure from displaced fragments, or pressure from without, such as tight bandaging. Treatment should be immediate; every minute is important. The arm should be released from all restraint likely to cause vascular obstruction; it should also be elevated. The child's future is so jeopardized that an attempt should be made to evacuate the blood clot by an incision on the antero-ulnar side of the forearm, and all blood expressed from the antecubital space. This prompt action may save the situation; it rests on a sound pathologic foundation, and successful cases have been reported. The ulnar nerve is often injured directly, or after a long interval. Direct injury occurs sometimes in cases of damage of the median epicondyle or in the condylar groove, and the nerve should be exposed only if symptoms persist. It may be necessary to transpose it anteriorly. Myositis ossificans may arise after any fracture about the elbow but is most commonly associated with dislocation of the elbow backward. Its onset is gradual, and, when established, may result in a complete or partial anklylosis of the elbow joint. It is generally due to tearing of the muscular and periosteal tissue from bone, accompanied by hemorrhage. Fragments of periosteum and osteogenic tissue are pulled away, and probably in this way the formation of new bone takes place along the interfibrillary and intermuscular septums. While one has every right to expect a good result from injuries of the elbow, one should be alive to possibilities and dangers. One should carefully note any nerve involvement at the moment of injury; one should speak of the possibilities of myositis ossificans and warn the parents of the dangers of energetic massage and movement campaigns. One should also recollect that the practitioner is not necessarily to blame if an ischemic palsy occurs; it may have nothing to do with tight bandaging, and it has occurred without flexion of the elbow, without splints and without bandaging. At the same time one should, if possible, prevent pressure from within by reducing displacements that cause acute venous obstruction, and avoid pressure from without. By no argument can the practitioner be held guilty of the origin of a myositis ossificans, nor can he be blamed for its development, provided he does not prescribe passive movements during the period of bone formation. If myositis ossificans appears and any error is to be made, it should be made on the side of rest; the author has seen many tragedies occur from too early movement. Finally, one should not fully flex an elbow without first reducing the fracture or displacement, and, having flexed the elbow, one should not obstruct the circulation of the arm by bandaging it in the flexed position.

Tetanus.—Cole states that tetanus is still sufficiently common in some districts to make it worth while reemphasizing the importance of prophylactic antitoxin, even after trivial wounds. When the disease has developed, the following rules should be observed: 1. Diagnosis should be made and treatment begun as early as possible. Pain and stiffness in the back of the neck and spine may be the earliest symptoms. These, associated with slight stiffness of the jaw and rigidity of the abdomen, should suggest tetanus. 2. Local treatment of the wound should be thorough, and should be done at the earliest possible moment. 3. Antitoxin should be given as soon as possible in large doses, preferably by the intravenous route. 4. Every effort must be made by symptomatic measures to reduce spasms and allay pain. For this purpose "Avertin" may prove of value. 5. The strength must be maintained by giving plenty of nourishment. For this to be achieved, good nursing is essential. Dextrose should be given freely.

Guy's Hospital Gazette, London

46: 137-152 (April 16) 1932

Hemorrhage in Jaundiced Patients. J. C. Colbeck.—p. 138.
The Northwestern University Dental School of Chicago. W. E. Herbert. —p. 145.

46: 153-176 (April 30) 1932

Head Injury: Two Cases. E. C. Hughes.—p. 155.
Hemorrhage in Jaundiced Patients. J. C. Colbeck.—p. 157.

Journal of Anatomy, London

66: 283-436 (April) 1932

Effects of Stimulation of Hypothalamic Pupillodilator Center After Successful Anastomoses Between Cervical Sympathetic and Certain Motor Nerves. J. Beattie, A. B. Duel and C. Ballance.—p. 283.
Study by Degeneration Methods of Innervation of Muscles of Lizard. O. W. Tiegs.—p. 300.
Anatomy of Intercostal Nerves. F. Davies, R. J. Gladstone and E. P. Stibbe.—p. 323.
Cervical Ribs and Rudimentary First Thoracic Ribs Considered from Clinical and Etiologic Standpoints. R. J. Gladstone and C. P. G. Wakeley.—p. 334.
Some Variations in Lower End of Femur Which Are Especially Prevalent in Bones of Primitive People. C. P. Martin.—p. 371.
Note on Identification of Lumbar Vertebrae of Man. E. Fawcett. —p. 384.
Vascular Supply of Pituitary Body in Dog. M. A. Basir.—p. 387.
Morphologic Characters of Australian Skull. W. M. Krogman.—p. 399.
Growth in Length of Long Bones in Madder-Fed Pig. C. G. Payton. —p. 414.
Anatomic Notes: Fusion of Cervical Vertebrae. N. Pan.—p. 426.
Teratologic Duplication in Sparrow, Passer Domesticus L: Case. W. E. Stoneman.—p. 430.
Defective Development of Septum Pellucidum. R. K. Rau and D. Sivasubrahmaniam.—p. 432.

Lancet, London

1: 867-918 (April 23) 1932

*Rôle of Hemolytic Streptococci in Infective Disease. C. C. Okell.—p. 867.
*Nature of Action of Radium and Roentgen Rays on Malignant Growths. S. Russ.—p. 874.
Pseudomirror-Writing: Case: Some Observations. R. Eager and J. W. Fisher.—p. 876.
*Therapeutic Effects of Plasmochin in Pregnancy. P. Manson-Bahr.—p. 882.

Hemolytic Streptococci in Infective Disease.—Okell presents evidence that seems to constitute a *reductio ad absurdum* for any specificity view of the hemolytic streptococci and the common human diseases with which they are related. It is as impossible to separate the several clinical and epidemiologic forms of streptococcal disease as it is to distingush specifically the streptococci found in connection with them. The attitude of the physician when faced with the actual practical clinical and epidemiologic problems of these diseases must largely depend on the view he takes of this matter, and one or the other view he must take as a working hypothesis and as a scheme for holding together the large number of facts that are available on the subject of the hemolytic streptococci and the diseases associated with them. The unitarian view is consonant with the admitted failure of the bacteriologist to subclassify the group. It is in consonance with the curious sequences of propagation that may be observed in streptococcal disease. It does something to explain the mysterious birth of streptococcal epidemics and the failure of hospital and other forms of isolation to control the incidence of scarlet fever. It permits a description of the hemolytic streptococci daily encountered in disease under one name, and it calls a truce to what Topley and Wilson call the "riot of christening," which has brought so much confusion into the study of this group. In designating a common toxin throughout the group and defining the clinical effects of that toxin, it indicates both the value and the limitations of antitoxin treatment; and, finally, it discourages the use of nonspecific serums that are labeled as specific.

Radiotherapy of Malignant Growths.—Russ states that if one attempts to evaluate the various actions of gamma rays and roentgen rays, bearing in mind their order of appareance in the scale of quantity—how some of the vital functions of living tissues are put out of action by a quantity of radiation which has but a trifling action on their other processes—perhaps the most important classes of action are: (1) those which interfere with or disorganize the delicate processes involved in the division and maturing of cells; (2) those which determine the release into the tissues and into the circulation of the products of cells, normal as well as malignant, whose destruction is caused by the rays, and (3) those which produce changes not only in the content and production of the blood but also in its power of dealing with infection.

Plasmochin in Pregnancy.—Since 1928, Manson-Bahr has treated five cases of malaria in pregnant women suffering from all three species of malaria infection, from the third to the eighth month of pregnancy. All have been given plasmochin

compound in the usually accepted therapeutic doses over a period of five separate weeks. The result was most satisfactory. The author's records show that no further relapse occurred either during pregnancy or post partum. The children were born at full term, and the only stillbirth was due to instrumentation.

Medical Journal of Australia, Sydney

1: 457-486 (April 2) 1932

The Basis of Immunity. H. D. Wright.—p. 457.
Acute Abdominal Conditions. J. C. Storey.—p. 465.

1: 487-520 (April 9) 1932

Renal Dwarfism. K. Maddox.—p. 487.

South African Medical Assn. Journal, Cape Town

6: 213-248 (April 9) 1932

The Judge and the District Surgeon. J. Tindall.—p. 215.
Surgical Treatment of Pulmonary Tuberculosis. A. R. McLachlan.—p. 219.
Patience. R. Theron.—p. 223.
Ophthalmologic Aspects of Hysteria. E. A. Seale.—p. 225.
The Relationship of the Doctor to the Paranoid Patient. M. J. Cohen.—p. 228.

Tubercle, London

13: 337-384 (May) 1932

*Fatal Lung Consolidation in Rabbits Through Intravenous Inoculation with Large Doses of Human Tubercle Bacilli. S. L. Cummins and C. Weatherall.—p. 337.
Suggestions for Improvements in Comparative Statistics of Tuberculosis Schemes. G. L. Cox.—p. 344.
Psychotherapeutic Treatment of Tuberculous Patients. L. F. Browne.—p. 347.
Spontaneous "Cures" in Phthisis. E. Simmerli and I. Choucry.—p. 353.

Experimental Tuberculosis in Rabbits. — Cummins and Weatherall report that the intravenous injection of large doses of "human" tubercle bacilli intravenously into rabbits is followed by a "danger period," coinciding in point of time with the usual time of onset of allergic hypersensitivity and capable of leading to deaths during the third and fourth weeks after infection. Rabbits surviving this danger period tend to return to health and, when human tubercle bacilli have been used, to establish a toleration of their infection. This danger period is characterized by symptoms of constitutional disturbance, such as loss of weight, increased rate of blood cell sedimentation, and a shift to the left of the Arneth count. Rabbits dying during this danger period are found to have "solid" lungs, the consolidation being due to a peritubercular cellular and exudative reaction of allergic type. "Early deaths" of this kind would appear to be unconnected with the virulence for rabbits of the strain of tubercle bacillus employed, and the possibility of their occurrence should be borne in mind by those attempting to estimate the virulence of tubercle bacillus cultures by intravenous inoculation of rabbits.

Annales d'Anatomie Pathologique, Paris

9: 345-455 (April) 1932

Calcified Hydatid Cysts. P. Jauregui and J. L. Monserrat.—p. 345.
Biologic Effect of Beta Rays of Radium and of Roentgen Rays. Olga Valentová.—p. 371.
*Endocrine Glands in Cirrhosis of Liver. J. Barrelet.—p. 385.
Torsions of Greater Omentum. A. Folliasson and A. Dufour.—p. 405.

Endocrine Glands in Cirrhosis of Liver. — Barrelet reports the results of a systematic anatomic and histologic postmortem study of the glands of internal secretion in persons with cirrhosis of the liver. In the majority of cases of cirrhosis the endocrine glands exhibited modifications in their anatomic and histologic structure. The testes in a majority of the cases revealed atrophic lesions of the seminiferous tubules, accompanied in about half the cases by increase of the interstitial cells. In cases of Laënnec's cirrhosis, atrophy of the testes was constant and more advanced in the atrophic stage than in the hypertrophic stage, in which the testes may present a normal structure. These lesions occur independent of age and intercurrent diseases. Fibrosis of the testes was found in only one case. In young women with cirrhosis, fibrous ovaries without germinal follicles were found only once. The thyroid presented atrophic changes in the form of loss of weight and a degeneration of the colloid, whose structure was modified. The colloid was often basophilic and in 79 per cent of the cases exhibited vacuoles filled with fine granulations, refractive and mucoid in character. The hypophysis sometimes showed an increase of basophilic cells at the expense of eosinophilic cells; almost equally often the chromophobic cells were increased in number. Basophilic elements were never found in the posterior lobe of the hypophysis. The suprarenals were deficient in lipoids in about half the cases of cirrhosis; the cortex sometimes revealed an increase of the connective tissue and the pseudoglandular lumens. In half the cases, the pancreas showed proliferation of the connective tissue, followed by atrophy of the glandular parenchyma. In 6 per cent of the cases, the fibrosis extended to the islands of Langerhans and had clinically given rise to diabetes. In 25 per cent of the cases the pancreas appeared unaltered.

Nutrition, Paris

2: 113-256 (number 2) 1932

Chronic Rheumatism and Digestive Apparatus. R.-J. Weissenbach.—p. 113.
*Chronic Rheumatism of Hepatobiliary Origin. R.-J. Weissenbach, R. Glénard and F. Françon.—p. 117.
Chronic Rheumatism and Functioning of Liver: Test of Induced Galactosuria. G. Etienne and P.-L. Drouet.—p. 139.
Rheumatism and Intestinal Disturbances. M. Labbe.—p. 143.
Chronic Rheumatism and Oxalemia. M. Lœper.—p. 151.
Infectious Polyarthritis and Esophageal Diverticulum. G. Maranon and M.-P. Weil.—p. 161.
Two Rare Forms of Rheumatism in Children. W. S. C. Copeman.—p. 169.
Cellulitis as Hepatobiliary Symptom. G. Monod.—p. 173.
Digestive Tract in Persons with Chronic Rheumatism. F. Coste and J. Forestier.—p. 187.
Serous Syndrome in Gouty Rheumatism. R.-J. Weissenbach and F. Françon.—p. 217.
Crenotherapy of Chronic Rheumatism of Digestive Origin. R. Glénard.—p. 243.

Chronic Rheumatism of Hepatobiliary Origin.—It is the opinion of Weissenbach and his co-workers that diseases and functional disturbances of the hepatobiliary apparatus are not given the place they deserve among factors capable of causing the appearance of chronic rheumatism. Hepatobiliary disturbances may give rise to three types of rheumatism: 1. Infectious rheumatism, due to a septic condition of the biliary tract; the angiocholecystitis may or may not be calculous. 2. Colloidoclastic rheumatism due to insufficiency of the proteopexic function of the liver. 3. Gouty rheumatism due to disturbance of the endocrine functions of the liver which regulate the chemical content of the body fluids (uric acid, cholesterol, and so on). The authors distinguish two periods in the evolution of these forms of chronic rheumatism: a primary purely functional period, characterized by vague fleeting pains without objective semeiology and a second organic period marked by alteration of the soft parts and osteocartilaginous changes, which result in continuous pain, stiffness and deformations. The hepatobiliary origin of these forms of rheumatism is revealed not so much by clinical determination of disease or functional disturbance of the biliary tract and liver as by the concurrent and parallel or alternating oscillations of the rheumatic manifestations and the symptoms, both objective and subjective, of hepatobiliary disturbance. It is especially during the primary period that these relations are often clearly seen, and only during its course can one hope to discover the initial cause and physiopathologic mechanism of many chronic rheumatisms. Therapy of chronic rheumatism of hepatobiliary origin should envisage improvement of the condition and function of the hepatobiliary apparatus and amelioration of the rheumatic manifestations.

Paris Médical

1: 373-408 (May 7) 1932

Diseases of Heart and Vascular System in 1932: Annual Review. P. Harvier and P. Noel-Deschamps.—p. 373.
Semeiologic Value of Arteriogram. C. Laubry, T. Brosse and A. van Bogaert.—p. 385.
*Anxious Crises in Persons with an Irritable Heart. E. Doumer.—p. 395.
Anacrotic Wave of Pulse and Its Dynamic Significance. J. Barbier.—p. 398.
Intravenous Injections of Glucosides of Lily-of-the-Valley in Treatment of Cardiac Insufficiency. C. Aubertin, Robert-Lévy and Wester.—p. 405.

Anxious Crises in Persons with an Irritable Heart.—Doumer says that the paroxysmal manifestations which complicate variable tachycardia and palpitation in individuals with

an irritable heart are in reality emotional paroxysms but their origin is cenesthopathic, not psychopathic. The syndrome is identical with that determined by violent emotional shock except that it develops spontaneously. A vague feeling of internal malaise invades the individual suddenly, he feels a constriction of the chest, weakness of the legs, his heart beats violently, seeming too large for his chest, and he has a feeling of losing consciousness and of impending death. For a few minutes, during which he has only a confused perception of what goes on about him, he endures terrible anguish, which finally passes. The basis of this malady consists in the hyperexcitability of the neurovegetative centers of the emotional function, which, according to Claude, not only transmit to the vagosympathetic system the mental confusion produced by emotional shock but also warn the mind of organic perturbations which may be harmful to the individual. The neurovegetative centers, sensitized to cenesthopathic stimuli, normally without effect, subject the accelerator system of the heart with which they are closely linked to repeated stimuli, resulting in habitual acceleration and incessant variations of cardiac rhythm. The tachycardia in turn evokes emotional reactions which in case of strong cenesthopathic stimuli become sensations of anguish which dominate the cardiac sensations. These crises are wrongly attributed to mental disturbance by some physicians, while others mistake them for attacks of angina, dyspnea, vertigo or syncope. Careful questioning of the patients usually reveals that the constriction of the chest, shortness of breath, dizziness and so on which they speak of in an attempt to characterize their vague sensations of anguish were not distinct enough to lead to the diagnoses mentioned and that confusion and agonizing malaise dominated all other sensations. The tachycardia, unusual instability of the heart and habitual hyperemotivity revealed in examination help to establish the diagnosis of simple spontaneous emotional paroxysms in these cases. It is a constitutional disturbance which develops in persons who have always been nervous. It is to be distinguished from the tachycardia that develops in persons following infectious disease, such as articular rheumatism, which is also characterized by variability but is not accompanied by anxiety and fear. This differentiation is important, because some therapeutic measures which give excellent results in tachycardia based on excitation of the neurovegetative centers of the emotional function are practically without effect on tachycardias of other origin.

Presse Médicale, Paris

40: 709-732 (May 4) 1932

Toxicity of Urea. L. Binet, A. Arnaudet and M. Marquis.—p. 709.
*Gonadotropic Hormone of Antehypophysis. G. Laroche and H. Simonnet. —p. 710.
Radical Cure of Femoral Hernia. P. Lerat.—p. 713.

Gonadotropic Hormone of Antehypophysis. — Laroche and Simonnet report the physiologic and clinical study of the antehypophyseal hormone which stimulates follicular maturation in the female, called by them gonadotropic hormone. In comparing its action on the functions of the genital tract with the action of the genital hormones folliculin and lutein, they state that administering folliculin to a patient replaces her insufficient folliculin, while administration of the gonadotropic hormone stimulates a deficient ovarian function. The authors have used the gonadotropic hormone in the treatment of thirty-four patients having disturbances of the menstrual cycle, with favorable results in 76 per cent of the cases. The gonadotropic hormone used by them contained 80 per cent of the active principle; it contained no folliculin, no somatotropic hormone, and not more than a trace of the luteinizing principle of the antehypophysis. Injections were sometimes made during the ten or fifteen days preceding the presumptive date for appearance of menstruation, sometimes during the interval extending from the tenth to the twentieth day after the beginning of the previous menstrual period. Given a little while after the menstrual period, the hormone activates the maturation of the follicle; given in the ten or twelve days preceding the period, it acts on the corpus luteum. It is impossible to prescribe an exact method for therapy. One should always try to reproduce the normal physiologic process by alternating the provoking of discontinued excitations of the genital system with periods of rest, permitting the latter in its turn to act on other organs. The action of the hypophyseal extract was sometimes immediate, sometimes delayed, probably depending on the phase during which it was administered. The gonadotropic hormone exerts a favorable influence on the menstrual flow and on the pathologic phenomena that accompany it and does not generally advance the menstrual periods as happens with folliculin and ovarian extracts. The amelioration of ovarian function produced by the gonadotropic hormone usually diminishes after a time, and a renewed series of injections is required to reactivate the ovarian function. Amenorrheas and dysmenorrheas of young girls and young women react best to injections of the hormone. In a woman of 24 with irregular menstruation since the age of [illegible] amenorrhea for four years, who had repeatedly been given folliculin and thyroid, ovarian and hypophyseal extracts orally without result, two injections of the gonadotropic hormone sufficed to reestablish the menstrual flow. The authors think this hormone therapy is valuable in oligomenorrhea, amenorrhea, dysmenorrhea and other conditions of ovarian insufficiency, but in menorrhagic conditions discrimination is required, as these are usually due to hypersecretion of folliculin. It is sometimes indicated in the menopause but is without effect if the ovaries are incapable of responding to hormonal stimulation. The combination of antehypophyseal opotherapy with administration of folliculin and lutein is sometimes advisable. Contraindications to gonadotropic hormone therapy are few. One should make a gynecologic examination before prescribing this opotherapy, to avoid provoking congestive reactions in women with pelvic inflammations.

Folia Medica, Naples

18: 209-276 (Feb. 29) 1932

Gout. P. Castellino.—p. 211.
*Case of Intestinal Amebiasis with Rare Extra-Abdominal Complications. A. Vasaturo.—p. 239.

Intestinal Amebiasis with Rare Extra-Abdominal Complications. — Vasaturo reviews the literature on amebiasis, stating that extra-abdominal symptoms of it are rare. He presents the symptomatology of the disease as anorexia, gastric dyspepsia, general malaise, fever, diffuse abdominal pains, mucosanguineous diarrhea with painful contractions of the diaphragm, and dysentery. The malady may be either chronic with exacerbations sometimes assuming the dysenteric type and with symptoms relating primarily to the digestive tube, or acute with serious complications often occurring extra-abdominally. It assumes the appearance of a serious infection: high fever, asthenia, despondency, stupor, mucosanguineous diarrhea and enterorhagia. Emetine and other therapeutic means may lessen pain but do not effect a cure. The author recognizes the possibility of migration of the protozoon through the lymphatic channels, especially regarding the organs connected with the perineum. The lack of cutaneous resistance and the irritation of the skin of the para-anal region contribute to the spread of the protozoon brought there either by the passage of fecal matter or by dirty objects or hands contaminated with amebas. The ameba often occurs in the respiratory organs in cases of pulmonary abscess, empyema or bronchopneumonia. Metastases occur through the lymphatics and blood vessels. In amebic complications of the oral cavity, the ameba travels from the larynx to the bronchial ramifications, destroying the epithelium of the mucous membrane of the upper air passages and the secretion of the membrane, which protects the respiratory tract from invasion by bacteria. In the author's patient the ameba must have invaded the periosteum, detaching it and following the subperiosteal route, and reached the malar, nasal and lacrimal bones, subsequently producing dacryocystitis. It invaded next the oculopalpebral region and the frontal bone, giving rise, in symbiosis with other bacteria, to orbital cellulitis and necrosis and gangrene of the eyelids and eyeball.

Policlinico, Rome

39: 361-400 (March 7) 1932 Practical Section.

Bronchospirochetosis. L. Cannavò.—p. 363.
Connective Tissue Cysts of Spermatic Cord. C. Giacobbe.—p. 369.
*Clinical Contribution to Knowledge of Pancreatic Cysts. G. de Simone. —p. 375.

Clinical Aspect of Pancreatic Cysts.—De Simone states that pain symptoms of pancreatic cysts are manifested either

by dull sensations at the epigastrium or more frequently by intense celiac neuralgia lasting sometimes for several days. The pain crises are due to the sudden change in the size of the cysts by transudation or by hemorrhages. A pancreatic cyst situated between the leaves of the mesocolon can assume the appearance of a mesenteric cyst, but this seldom occurs. In two cases studied by the author there were definite symptoms of liver cysts: marked eosinophilia, positive intradermal reaction to cyst fluid, and gradual increase without oscillations in volume. Surgical operation confirmed the diagnosis of pancreatic cyst. The method of operation employed, evacuation by marsupialization, resulted in a complete cure, after the fistulous tract had closed a few weeks later.

Deutsche medizinische Wochenschrift, Leipzig

58: 685-722 (April 29) 1932. Partial Index

*Origin and Treatment of Sanguineous Apoplexy. K. Westphal.—p. 685.
Anatomic Considerations on Pathogenesis of Sanguineous Apoplexy. K. Neubürger.—p. 690.
*Yawning. A. Peiper.—p. 693.
*Is It Advisable to Anesthetize Skin by Ethyl Chloride Spray Previous to Use of Galvanocautery? F. Dietel.—p. 698.
*Clinical Significance of Creatinuria. C. Brentano.—p. 699.
Observations on Pancreatitis. C.-H. Goldmann.—p. 701.
Potassium Iodide in Tertiary Syphilis. F. Bruck.—p. 701.

Origin and Treatment of Sanguineous Apoplexy.—Westphal shows that apoplexy is an extremely complex process. The pathologic vascular function of arterial hypertension, the great susceptibility of the gray matter in the basal ganglions to ischemia, and the predisposition of the gray matter for chemical changes act together to produce sanguineous apoplexy. In discussing the treatment the author states that venesection, even if from 300 to 500 cc. is withdrawn, is of little avail since the decrease in blood pressure, which it is intended to produce, often does not occur. As more effective he considers injections of a 40 per cent solution of dextrose. These injections of 50 cc. each are repeated for ten days, and they effect a more rapid disappearance of the paralytic symptoms than a merely expectant therapy. The softening of the brain of senile arteriosclerosis reacts less favorably to this measure. It was also found that if procaine hydrochloride is added to caffeine a better blood perfusion of the ischemic regions is effected than if only caffeine is given. The favorable effects of the dextrose injections can often be improved by lumbar puncture with withdrawal of large amounts of spinal fluid. For the prophylaxis of apoplexy, practically all the measures are advisable that have been recommended for the treatment of hypertension. The author emphasizes medication with small doses of sodium thiocyanate and a diet deficient in fats and meats.

Yawning.—Peiper advances the theory that yawning is nothing but a respiratory movement, which is produced by a reduction in the nervous excitability of the respiratory center. Considered from the evolutional point of view, the yawning center is a lower form of the respiratory center, and the latter ordinarily inhibits the yawning. When, however, during fatigue these inhibitions are reduced, the yawning center dominates temporarily. Thus one does not yawn to counteract fatigue but as a result of fatigue.

Inadvisability of Simultaneous Use of Ethyl Chloride Spray with Galvanocautery.—Dietel shows that under certain conditions ethyl chloride can become inflammable. He admits that the likelihood of a fire is somewhat remote but nevertheless thinks that the fire danger is sufficient to contraindicate the simultaneous use of the ethyl chloride spray and the galvanocautery.

Clinical Significance of Creatinuria.—Brentano maintains that creatinuria is a comparatively frequent manifestation. It is observed in diabetes, in thyrotoxicosis, in pregnancy, in fever, in starvation, following muscular exertion, following intense cooling, and in cachectic conditions. The common factor in all these conditions is a disturbance in the carbohydrate metabolism, and it is shown that the interaction between the creatine and the carbohydrate metabolism can take place only in the muscles. Because the main substance in the carbohydrate metabolism in the muscle is glycogen, the author assumed that glycogen deficiency plays an important part in the development of creatinuria. Tests proved that in all cases of creatinuria there is a considerable decrease in the glycogen content of the skeletal muscles, and that all processes that reduce the glycogen content of the skeletal muscles also produce creatinuria.

Deutsches Archiv für klinische Medizin, Berlin

173: 1-122 (April 20) 1932

Free and Combined Amino Nitrogen in Deproteinized Blood and Tissues, Particularly in Diseases of Liver. E. Becher and E. Herrmann.—p. 1.
Free and Combined Amino Nitrogen in Deproteinized Blood and Tissues in Essential Hypertension and in Renal Diseases. E. Becker and E. Herrmann.—p. 23.
*Relations Between Insensible Perspiration and Basal Metabolism in Healthy Persons and in Patients. H. Magendantz.—p. 44.
Significance of Gastric Mucus for Combining of Acid and for Total Chlorides in Gastric Juice. H. Kalk and A. Bonis.—p. 53.
*Clinical Aspects and Therapy of Acute Anterior Poliomyelitis in Adults. F. W. Bremer.—p. 58.
Diagnosis of Bronchial Tumors. L. Hess and J. Faltitschek.—p. 68.
Hernias of Esophageal Hiatus of Diaphragm. R. Schatzki.—p. 85.
*Eosinophilic Cystitis. Cäcilie Westphal.—p. 104.
Epinephrine Susceptibility in Cerebral Disorders. S. Molnár and A. Leszler.—p. 109.

Relations Between Insensible Perspiration and Basal Metabolism.—According to Magendantz, insensible perspiration cannot be explained merely as a physical process: he is convinced that there is a nervous regulatory mechanism. He found that with increased basal metabolism a greater percentage of the body heat is eliminated by perspiration, while at the same time a correspondingly smaller percentage is eliminated by heat radiation. In ninety-seven patients without disturbance in the water economy, the author determined in about 500 tests the "basal" perspiration and the basal metabolism, immediately following each other. In only seventy cases did the values correspond, and for this reason the author considers the determination of the perspiration as not suitable for measuring the basal metabolism. He generally found the amount of perspiration too large in comparison with the basal metabolism in vasolabile, overexcitable persons, particularly in patients with exophthalmic goiter. On the other hand, a considerable decrease in the insensible perspiration was observed in several cases of endogenous obesity. Such an unusual reduction in perspiration seems to be a typical sign of endogenous respiration.

Acute Anterior Poliomyelitis in Adults.—Bremer shows that in adults the clinical course of acute anterior poliomyelitis is somewhat different than in children. The preparalytic stage lasts somewhat longer and the transition to the paralytic stage is not sudden but gradual, sometimes requiring several weeks. The symptoms of meningeal irritation are more pronounced than in children, and atypical cases are more frequent than was formerly believed. In regard to the treatment, it is stated that serotherapy in adults is still effective during the paralytic stage, whereas it has been generally observed that in children it is effective only during the preparalytic stage. The most effective serum is convalescent serum, but because it is not always available the author employed Pettit's serum, which is prepared by injecting into a horse, portions of the spinal cord and of the pons varolii of monkeys that have been infected with the virus of poliomyelitis, and later withdrawing blood from the horse. The results obtained with this serum were satisfactory.

Eosinophilic Cystitis.—Westphal describes several cases of so-called eosinophilic cystitis, with clinical aspects that differ from the usual forms of cystitis. The sediment contains an unusually large number of eosinophilic cells that form mucous-fibrinous flakes. The patients usually complain of piercing, pricking pains in the bladder and there is a great tendency for spasms. The attacks of tenesmus are largely due to psychic influences. The vesical mucous membrane is predisposed to capillary hemorrhages, and considerable amounts of mucous and fibrin are eliminated. The inflammatory symptoms are usually more exacerbated than remedied by the customary medicaments, but general alkalization is usually helpful. In many respects, especially in the psychic factor, the disease resembles asthma. The practical significance of its correct diagnosis lies in the fact that the presence of eosinophilic cells in the sediment indicates the pathogenesis and by this gives pointers for an effective therapy.

Klinische Wochenschrift, Berlin

11: 705-752 (April 23) 1932

Application of Physical and Chemical Laws in Investigations on Pharmacologic Reactions. W. Laubender.—p. 705.
*Multiple Chronic Articular Disease and Rheumatic Infection During Childhood. T. Fahr and H. Kleinschmidt.—p. 708.
*Cause of Rustbrown Coloration of Sputum in Pneumonia. H. Schade and H. von Pein.—p. 713.
Metabolic Investigations on Persons Living on Raw Diet. H. Habs.—p. 715.
Modification of Secretion of Saliva by Different Emotions. E. Wittkower and W. Pilz.—p. 718.
Group Specific Test Tube Reaction of Stroma of Erythrocytes. F. Ottensooser and St. Zurukzoglu.—p. 719.
Influence of Intravenous Injection of Thyroxine on Iodine Content of Blood and Elimination of Iodine in Urine. J. Bøe and A. W. Elmer.—p. 721.
Applicability of Colorimeter According to Autenrieth-Königsberger for Determination of Tryptophan in Blood Serum by Means of Voisenet's Reaction. T. Wohlfeil and E. Undritz.—p. 721.
Heredity of Blood Groups. Juhász-Schäffer.—p. 725.
Diathermy Treatment of Diseases of Liver. A. V. Frisch.—p. 725.
Occurrence of Tetanigenic Substance in Urine of Spasmophilic Nurslings. A. Nitschke.—p. 726.
Idem. W. Hertz.—p. 726.
Determination of Adhesiveness of Fluids to Solids by Simple Colloid-Chemical Method. H. Lampert.—p. 727.
Cheap, Reliable Method for Production of Experimental Xerophthalmia in Rats. J. Avellar de Loureiro.—p. 727.

Multiple Chronic Articular Disease and Rheumatic Infection During Childhood.—In addition to other clinical observations, Fahr and Kleinschmidt report the clinical history of a child, who died at the age of 9 after suffering for three and a half years from multiple chronic articular disease. In spite of the fact that the typical manifestations of Still's disease, such as high fever and enlargement of the spleen and lymph nodes, were absent, the adhesive pericarditis, which is generally considered as characteristic for this disease, was present, and the exanthems that are so frequently observed in Still's disease also recurred several times. There also existed a myocarditis, which as yet has not been reported in similar cases. Whereas the roentgenograms, which, to be sure, were made a considerable time before death, showed only atrophy of the bone but no changes on the articular surfaces, the postmortem examination revealed a noticeable atrophy of the tissues of the articular surfaces. The authors think that if everything is taken into consideration the case can be classified as atypical Still's disease. In the thickened periarticular tissues there were round cell infiltrates, but rheumatic granulomas were found neither here nor in the heart. In view of these observations the authors reject a relationship of this condition to rheumatic granulomatosis, as had been assumed by others. They think that the clinical and anatomic aspects speak for a chronic infectious disease. The fact that specific processes were not detected in the histologic examination, as well as the tendency of the nonspecific inflammation for a definite localization, induces the pathologist to think of an allergic reaction to a perhaps common pathogenic agent. Streptococcus viridans, which was noted by another investigator in a typical case of Still's disease, could not be demonstrated; but the authors do not consider this as a proof against the etiologic significace of this micro-organism but point out that its demonstration is difficult and advise in all unclear cases repeated bacteriologic examinations, which may reveal Streptococcus viridans or other types of streptococci; or, if they remain negative, it is thought possible that perhaps the infection with streptococci is secondary.

Rustbrown Sputum in Pneumonia.—Schade and von Pein, after reviewing several theories that have been advanced to explain the rustbrown coloration of the sputum in lobar pneumonia, point out that in inflammatory processes the hydrogen ion concentration is shifted toward the acid side. Tests on the sputum of patients with lobar pneumonia indicated that this is also the case in pneumonia. Discoloration of blood is produced by the transformation of hemoglobin into hematin. This transformation is effected by acidity, even by comparatively slight degrees. Spectroscopic analysis of the rustbrown sputum in pneumonia reveals a hematin spectrum, which, in view of the acidity and of the diapedesis, becomes understandable. The rustbrown color indicates a considerable acidity and small amounts of blood, both of which are characteristic for lobar pneumonia. For this reason the rustbrown sputum can be considered pathognomonic for lobar pneumonia. However, in exceptional cases the same conditions may also occur in bronchopneumonia.

Münchener medizinische Wochenschrift, Munich

79: 701-740 (April 29) 1932. Partial Index

*Changes in Leukocyte Picture Produced by Rays of Various Wavelengths. H. Küstner, G. Dreyer and W. Siede.—p. 703.
Experimental Studies with Diphtheria Toxin. Slauck.—p. 705.
Sepsis Produced by Influenza Bacillus. F. E. Koch.—p. 706.
Serotherapy and Etiology of Scarlet Fever. E. Winkel.—p. 707.
Treatment of Fat Embolism. W. Rückert.—p. 709.
*Symptomatology and Therapy of Meralgia Paraesthetica. E. Fischer and E. Krieg.—p. 710.
Casuistics on Differential Diagnosis Between Brown Induration of Lung and Pulmonary Tuberculosis. J. Tillman.—p. 712.
Clinical Aspects and Therapy of Pyelitis in Women. H. von Hoesslin.—p. 713.
Strontium and Physiologic Function of Calcium. O. Loew.—p. 718.
Significance of Metreurynter as Dilator. A. Haupt.—p. 719.

Changes in Leukocyte Picture Produced by Rays of Various Wavelengths.—Küstner and his associates first describe changes in the blood picture, which they observed following the therapeutic use of red rays. They examined the blood before the irradiation, immediately after and eight hours later. On the basis of observations on human beings, they conclude that treatment with red rays produces a considerable lymphocytosis. They maintain that the red rays do not effect this influence by way of the skin but by their deep penetration influence the blood and lymphatic system directly. In the second part of the article the authors relate their experiments on guinea-pigs that were first exposed to red rays and then to blue rays. The red rays produced a considerable lymphocytosis, whereas the subsequent application of blue rays counteracted this lymphocytosis and instead produced a leukocytosis. But when the animals were again exposed to red rays the lymphocytosis returned. The authors also tried to increase or decrease the ray action by administration of ovarian hormone. However, no noticeable differences could be produced by this method, and accordingly they conclude that the changes in the blood picture are not due to hormonal changes but to a direct influence of the rays on the blood and the body tissues. They advise that, during the therapeutic use of rays of the wavelengths from red to ultraviolet, attention should be given to changes in the leukocyte picture.

Symptomatology and Therapy of Meralgia Paraesthetica.—Fischer and Krieg show that the paresthesias in the region of the lateral cutaneous nerve of the thigh should be differentiated from other forms of neuritis. They base this differentiation on the peculiar anatomic conditions. In discussing the causes of meralgia, they mention conditions of mechanical irritation, and toxic influences. On the basis of the symptomatology, two types are differentiated; namely, one form in which the paresthetic symptoms predominate, and another form in which there exist primarily neuralgic symptoms. The authors state that they obtained the most favorable results with a perineural infiltration therapy, in which they employed an isotonic solution of antipyrine to which an alkaline preparation is added rather than procaine hydrochloride with its acid reaction. The infiltration fluid is deposited not in a single depot but in several depots, along the course of the nerve, at points where the nerve is sensitive to pressure. The infiltration is made slowly and either intracutaneously or subcutaneously, but not underneath the fascia. The authors found that in more than half the cases one series of injections was sufficient. In other cases the injections had to be repeated two or three times after intervals of from four to eight days. In one instance the infiltration therapy failed, but a later operative intervention revealed that the neuritis had been caused by pressure from a tumor. In addition to the local infiltration therapy it is of course also necessary to treat the primary disorder, which is often an infectious disease. The cases of meralgia paraesthetica that are due to flatfoot or to incomplete flatfoot stand apart in regard to their treatment in that one should first attempt the correction of the feet without resorting to infiltration therapy. In the last part of the article it is stated that the infiltration therapy can also be employed in peripheral neuralgias of different localization, as well as in chronic inflammation of articular capsules. The action mechanism of the treatment is not yet fully understood.

Strahlentherapie, Berlin

43: 601-822 (April 13) 1932

Indications for Roentgen Therapy in Skin Diseases. S. R. Brünauer. —p. 601.
Tissue Doses in Ray Therapy of Neoplasms. H. E. Martin and Edith H. Quimby.—p. 631.
Radium Dosimetry by Photometric Method. H. Holthusen and A. Hamann.—p. 667.
Influence of Alpha, Beta and Gamma Rays of Radium on Aerobic Respiration of Animal Organisms. J. Stoklasa.—p. 685.
*Results of Prolonged Fractional Roentgen Therapy of Malignant Tumors. A. Zuppinger.—p. 701.
*Ten Years of Ray Therapy of Sarcoma. S. Rózsa.—p. 719.
Acid-Base Equilibrium in Carcinoma of Female Genitalia. R. Krumeich. —p. 727.
*Roentgen Therapy of Syringomyelia. E. Giese and W. Ossinskaja. —p. 739.
Severe Injury of Pericardium Following High Voltage Irradiation of Precordial Region. H. Faust.—p. 749.
Roentgen Carcinoma Cured by Radium Treatment. A. H. Roffo.—p. 757.
Last Ultraviolet Wavelengths of Sunlight and of Skyshine in Climate Zones of Atlantic. Gertrud Riemerschmid.—p. 767.
Absolute Measurement of Short Wave Ultraviolet Irradiation of Various Lamps. O. Gaertner.—p. 775.
Practical Value of Ultraviolet Dosimeter. H. Huber.—p. 779.
Photochemical Diathermy. G. Kögel.—p. 783.
Technic of Intratumoral Radium Therapy. G. Spiess.—p. 789.
Action of Roentgen Rays on Biologic Tissues. J. Schechtmann and W. Klupfel.—p. 792.

Fractional Roentgen Therapy of Malignant Tumors.—Zuppinger points out that Coutard's method of prolonged fractional roentgen treatment has led to great changes in ray therapy, in that now many tumors can be subjected to an effective treatment, which formerly could hardly at all be influenced. He gives a report of twenty cases of malignant tumors in which the prolonged fractional roentgen treatment was employed, and in all of which the patients have been free from symptoms for more than a year. In nineteen of the cases the diagnosis was verified by the histologic examination. Eighteen of the tumors proved to be carcinomas and one a sarcoma. The neoplasms involved various structures, such as the epipharynx, maxillary sinus, cheek, tonsils, tongue, vallecula epiglottica, lateral column, larynx, pyriform sinus, vocal cords, mediastinum and parotid. Surgical treatment would have been possible in only four cases. The number of irradiations as well as the dosage varied in the different cases. The total dosage was determined by the results, for the irradiation was continued until in the region of the pavement epithelium an uninterrupted layer of fibrin had formed. In two cases radium treatment was necessary and in two others a surgical intervention was required in addition to the roentgen irradiations. The authors found that prospects for recovery are largely dependent on the extent of the regional metastases, on the size of the primary tumor, on the patient's general condition and on the histologic structure of the tumor. Prolonged fractional roentgen treatment, the author emphasizes, is not a cure-all but is advisable in tumors of the mucous membranes consisting of pavement epithelium, in which because of the location of the neoplasm a radical operation is not advisable. It can also be resorted to in operable cases when the patient does not consent to a surgical intervention or when the operation involves serious mutilation and the histologic examination indicates that the tumor is sensitive to ray therapy. Prolonged fractional roentgen therapy should of course not be resorted to when another method that is more rapid and less trying for the patient promises the same results.

Ten Years of Ray Therapy of Sarcoma.—Rózsa reports that in the decade from 1920 to 1930 he resorted to irradiation in 129 cases of sarcoma. After three years the percentage of cure was 22 and after five years 14.6. He thinks that the therapy of sarcomas should remain mostly surgical, for the percentage of permanent cures after operations is larger than that obtained with irradiation. However, before resorting to operations that lead to disfigurement, one should give irradiation a trial. In certain sarcomas, such as those of the tonsils and of the nasopharynx, irradiation is apparently superior to surgical treatment; in adenosarcoma it is of the same value. Sarcoma of the pleura and of the uterus and postoperative relapses in maxillary sarcomas do not react altogether unfavorably to irradiation. Larger doses of rays did not seem to improve the results.

Roentgen Therapy of Syringomyelia.—Observations made in the course of five years and on a considerable material convinced Giese and Ossinskaja that roentgen therapy is the method of choice in syringomyelia. In about half the cases it effected lasting improvements, in others the progress of the disease was arrested, but in 20 per cent of the cases the process progressed in spite of the roentgen treatment. In the newer cases the percentage of favorable results was larger; however, there were also cases of longer duration that reacted more favorably than some newer cases. This is most likely due to the character of the pathologic process, to the presence of a gliosis or of cavities. In cases of cavity formation, roentgen treatment was of little avail. Particularly effective was the roentgen therapy in the trophic sphere; that is, it effected rapid cicatrization of wounds, resorption of articular exudates and cure of fistulas. Improvements in the sphere of the skin sensibility were more frequent than in the motor sphere. The tactile and pain sensitivity of the skin improved in the majority of cases simultaneously and earlier than the temperature sensitivity. The pareses of the lower extremities improved in a larger number of cases than the pareses of the upper extremities, which may be explained by the fact that roentgen therapy improves the function of the pyramidal tracts more than that of the motor cells of the cervical enlargement. It is known that in cases of cervical syringomyelia the pareses of the lower extremities are caused by a lesion of the pyramidal tracts, but the pareses of the upper extremities are due to a lesion of the motor cells in the anterior cornus of the cervical enlargement of the spinal cord. On the basis of observations in a considerable number of cases of syringobulbia the authors conclude that, in spite of the fact that syringobulbia is a more serious condition than syringomyelia, roentgen therapy is more effective in syringobulbia in that it influences the bulbar symptoms and sometimes causes their complete disappearance. The favorable results of roentgen treatment of syringomyelia are due to the destructive action of roentgen rays on the gliomatous tissue. Since the process develops later in the brain stem than in the spinal cord, it becomes clear why roentgen therapy produces better results in syringobulbia than in syringomyelia, for syringobulbia is generally a more recent process than syringomyelia.

Wiener klinische Wochenschrift, Vienna

45: 513-544 (April 22) 1932

Acute Gastritis. H. Hamperl.—p. 513.
Injuries of Central Nervous System. E. Ranzi and P. Huber.—p. 514.
*Dietary Treatment Following Surgical Interventions on Stomach. H. Neuffer.—p. 518.
Etiology and Therapy of Acute Yellow Atrophy of Liver. N. Klein and S. Szentmihályi.—p. 520.
Cultivation of Tubercle Bacilli According to Löwenstein from Tissues of Tuberculous Skin Diseases. A. Matras.—p. 524.
Cure of Acute Psychosis by Somatic Purging Treatment. N. Galatzer. —p. 525.
Differential Diagnosis and Therapy of Icteric Conditions. E. Lauda. —p. 526.
Various Types of Hemorrhagic Diathesis and Their Treatment. U. Strasser.—p. 530.
Disturbances to Be Differentiated from Disease of Vermiform Appendix. G. Lotheissen.—p. 532.

Dietary Treatment Following Operations on Stomach.—After calling attention to the changes that are produced in the digestive tract by operations on the stomach, Neuffer discusses postoperative complications such as vomiting, diarrhea and dyspepsia. He then shows what foods are advisable to avoid these complications. As most suitable he considers a diet that is rich in carbohydrates but deficient in proteins and in fats, for carbohydrates are readily digested without the aid of the stomach, but proteins require for their digestion gastric juice and should therefore be limited. The fat intake should be restricted because of the retarded flow of the duodenal juice, but gradually, as its flow and the acid secretion increase again, a larger amount of fat may be given. The author has followed these principles in 132 cases of extensive gastric resection and in eight cases of gastro-enterostomy. As a result of this treatment, postoperative complications were almost entirely absent. The slight loss of weight that followed the operation was quickly regained. The majority of the patients could be discharged with an adequate diet on the tenth or twelfth day. In the course of the first four weeks the patients usually gained about 3 Kg. (6⅔ pounds). Whether the diet can or cannot prevent late complications, such as peptic ulcer of the jejunum, relapse of the ulcer, cholecystopathies, pancreatic disturbances

or anemia, cannot be stated, since the time of observation is as yet comparatively short. In the conclusion the author emphasizes that the patient who has undergone resection of the stomach cannot be considered as cured but requires a careful dietary after-treatment. Immediately after the operation, this treatment should follow the principles discussed. When the patient is discharged, he is given written dietary regulations telling him what he is permitted to eat and what he should not eat. He is advised to follow these regulations for at least two or three months. After that the diet can gradually be changed, but it is advisable to repeat the restricted postoperative diet from time to time to avoid late complications.

Zeitschrift für Tuberkulose, Leipzig

64: 239-318 (April) 1932. Partial Index

Robert Koch: Fiftieth Anniversary of Discovery of Tubercle Bacillus. A. Calmette.—p. 239.
*Occurrence of Tubercle Bacilli in Hen Eggs. Stefania Lichtenstein. —p. 245.
*Tubercle Bacilluria as Manifestation of Generalized Infection in Pulmonary Tuberculosis. H. Deist.—p. 256.
Roentgenoscopy in Pulmonary Tuberculosis. A. Engelhard and H. Sielmann.—p. 267.
How to Supervise Persons Living with Patients Who Have Open Tuberculosis: Regular Roentgen Examinations or Hygienic Education. H. Braeuning.—p. 281.
Regular Examinations of Persons Living with Patients with Open Tuberculosis. J. E. Kayser-Petersen.—p. 289.

Occurrence of Tubercle Bacilli in Hen Eggs.—Lichtenstein tested 525 market eggs of various grades, 216 eggs from hens belonging to a group that was infected with tuberculosis, and 38 eggs that had been inoculated with the bacilli of chicken tuberculosis. In the market eggs she twice found living virulent tubercle bacilli (0.38 per cent), and in the eggs from infected hens she detected them once (0.46 per cent). From the artificially infected eggs, tubercle bacilli could still be cultured 167 days after the inoculation. Microscopic examination revealed tubercle bacilli 198 days after the inoculation, when the last egg was tested. Because with one exception the eggs from chickens with tuberculosis were free from virulent bacilli, the author concludes that the danger of obtaining infected eggs on the market should not be overestimated.

Tubercle Bacilluria as Manifestation of Generalized Infection in Pulmonary Tuberculosis.—Deist cites reports from the literature which indicate that the opinions are divided as to whether tubercle bacilluria may occur in extrarenal tuberculosis. He then relates his own studies on this problem. In summing up his observations in animal experiments and on human subjects, he states that the kidney is permeable for tubercle bacilli when it itself is free from tuberculous infection. This observation disproves the claim made by some that the presence of tubercle bacilli indicates renal tuberculosis. The author also emphasizes the importance of this factor for the combat of tuberculosis, but he sees the greatest significance of tubercle bacilluria in the fact that it proves tubercle bacillemia, for the bacilli that are present in the urine can originate only in the blood. He admits that in some cases of tubercle bacilluria the Löwenstein method failed to demonstrate the presence of tubercle bacilli in the blood, but he ascribes this to the fact that the entire urine can be examined, whereas only minute portions of blood can be tested. He thinks that the indirect proof of bacillemia by bacilluria will be of great importance in investigations on the hematogenic dissemination of tuberculosis in the organism.

Zentralblatt für Chirurgie, Leipzig.

59: 1137-1200 (May 7) 1932. Partial Index

Hypernephroma; Noteworthy Early Cases and Resection in Late Cases. P. Rosenstein.—p. 1138.
Cholecystectomy: Critical Remarks on Gallstone Surgery with Recommendations for Changes of Customary Methods. A. Plenk.—p. 1144.
*Cure of Osteomyelitic Cavities by Approximating Their Walls. N. Grzywa.—p. 1149.
Operation for Large Hernias of Abdominal Scars. A. Schlesinger.—p. 1151.
Gas Peritonitis. A. Angerer.—p. 1155.
Surgical Cure of Intestinal Phlegmon: Case. M. Fossel.—p. 1160.
Isolated Traumatic Subcutaneous Tearing of Duodenum. E. Sereghy. —p. 1165.

Cure of Osteomyelitic Bone Cavities by Approximating Their Walls.—Grzywa states that he employed filling of bone cavities, especially those of the calcaneum, with changing success. In suppurating cavities, the filling was frequently expelled again. Only when the process was sterile or extremely inactive did the filling heal in. The author thinks that the failures were largely due to the fact that his patients, being natives of Sumatra, walked barefoot and thus injured the scar and caused a relapse. He relates his observations on one patient in whom filling of an osteomyelitic cavity on the calcaneum failed twice. Accordingly he decided to try to bring the walls of the cavity together and thus eliminate the cavity. After all diseased tissue had been excised, the walls were pressed together and then fixed by catgut sutures of the periosteum. The wound now healed by primary intention without fistula formation. After four weeks the patient was able to walk with a plaster-of-paris cast, and after another two weeks he could walk without it. Roentgenoscopy showed a solid healing of the bone. The patient has now for several months been entirely free from difficulties. The author considers this procedure also helpful for the treatment of cavities in the diaphysis of bones, but in the diaphysis only one wall should be moved, so that the continuity of the bone is preserved.

Sovetskaya Vrachebnaya Gazeta, Leningrad

March 15, 1932 (number 5) pp. 257-320. Partial Index

*Surgical Treatment of Scarlatinal Otitis. P. G. Lepneva.—p. 265.
*Improvized Endo's Lactose Medium. M. A. Zelikinoy, M. I. Konevskoy and E. T. Pavlovoy.—p. 303.

Surgical Treatment of Scarlatinal Otitis.—Lepneva states that there is no uniformity in the various theories on the etiology and hence treatment of scarlatinal otitis. She agrees with other workers that the complications in the ear secondary to scarlet fever may be of two forms. The first form does not vary from ordinary otitis; the second form is different from ordinary otitis in the depth and extent of the infection, which is characterized by rapid spread to the temporal bone. The first form often passes into the second, but the deep forms predominate in scarlet fever. The great number of deep seated infections lead many workers to believe that the scarlatinal process in the ear has a tendency to extend to bone, to the facial nerve, the internal ear and the cranium. Early paracentesis and early trephination of the mastoid process may check the infection and its tendency to spread. During the period 1930 to 1931 among 380 patients with scarlet fever in the infectious disease clinics of a military medical academy, ninety patients, or 25 per cent, had otitis complications ranging from catarrhal otitis to necrotic otitis: fourteen of these were catarrhal and in the rest there was a spontaneous or postparacentetic puriform discharge. A paracentesis was rarely performed on the first day of the examination and in the whole group there were only ten such interventions. Among seventy-six patients with puriform otitis, thirty-nine had symptoms of a complication of the mastoid process and in ten trephination was indicated, while twenty-four patients with mastoiditis improved without trephination. There were only five cases of anergic forms of necrotic scarlatinal otitis which involved the whole ear. The author's conclusions are as follows: The greater chronicity of scarlatinal otitis in contradistinction to ordinary otitis is a consequence of a lowered body resistance. Scarlatinal otitis extends intracranially more often than ordinary otitis. Disturbances of the ear offer the best indications for paracentesis and trephination of the mastoid process. In toxic forms of scarlet fever with almost entire absence of body resistance, trephination is contraindicated. In view of the late appearance of scarlatinal mastoiditis (in many instances after the patient has been discharged), patients should be carefully watched until all the characteristic symptoms have disappeared. Treatment in all cases should be based not on isolated symptoms but on the whole clinical picture, and one should treat "the patient rather than the disease."

Improvised Endo's Lactose Medium.—Zelikinoy and his co-workers report that a whey medium can be substituted for the classic Endo-Drigalski medium. They used the technic recommended by Gartokha, as follows: To milk warmed in a water bath at 80 C., one sixth of its volume of a solution of 10 per cent calcium lactate is added, and the whole quantity is filtered after the casein has been precipitated. Another method is to allow the milk to turn sour for twenty-four or forty-eight hours, heat it from fifteen to twenty minutes in a water bath

at 100 C. for complete precipitation of the casein, and then filter it through linen. The whey prepared by either method is made alkaline to p_H 7.4, heated from twenty to thirty minutes at 100 C., filtered through paper, and mixed with 3 per cent agar in the ratio of 1 to 2. To this whey agar is added the usual quantity of a 10 per cent solution of sodium sulphate and concentrated alcoholic solution of fuchsin. Either meat peptone or yeast agar is used. Other methods of preparing whey are one in which rennin is added and another in which Bacillus bulgaricus is used. The authors conclude that deficiency of lactose may be remedied by substitution of whey. The appearance of the Endo medium prepared with whey and the differentiating qualities in the culture of coli-typhoid-paratyphoid and dysentery bacteria are similar to the classic Endo medium. The monosaccharides present in whey do not diminish the distinct differentiating qualities of the Endo substitute.

Ukrainskiy Medichniy Arkhiv, Kharkiv

6: 1-128 (No. 1) 1931

Pathologic Anatomy and Geographic Scope of Kussmaul's Periarteritis Nodosa: Twenty Cases. M. Melnikov-Razvedenkov.—p. 11.
Specific Complement Fixing Antibodies Studied After Transplantation of Kidneys and Making Vascular Suture. Yu. Voroniy.—p. 33.
*Growth of Malignant Tumors During Pregnancy and Lactation. I. Mishchenko.—p. 47.
*Influence of Intravenous Injections of Distilled Water on Blood. P. L. Ginsburg.—p. 57.
Disturbances of Peripheral Blood Circulation. Ts. Levina.—p. 63.
Scleroma Respiratorium in Ukranian Forestlands. L. A. Zaritskiy.—p. 72.
Intraperitoneal Injections of Amniotic Fluid to Prevent Intraperitoneal Adhesions. I. Zernitskiy.—p. 82.
Clinical Aspect of Tuberculosis of Kidneys in Children. O. Krikent.—p. 91.
Clinical Aspect of Aortitis Ascendens. A. B. Khavkin.—p. 98.
Biologic and Endocrinologic Factors in Otorhinolaryngology. O. Geshelin.—p. 107.
Homeopathy and Otorhinolaryngology. A. Kekalo.—p. 115.
Aims and Work of Metchnikoff's Institute for Experimental Medicine, Biology and Morphology. Ya. I. Lifshitz.—p. 124.

Growth of Malignant Tumors During Pregnancy.—Mishchenko states that during pregnancy the secretion of the hormones of the organism becomes complex and the chemical state of the body becomes transformed. The secretion of the anterior lobe of the hypophysis increases and as a result the prolan hormone of the blood increases a thousandfold. Chemical activity causes an increase in the corpus luteum. Chemical irritation caused by the growing fetus, the uterus and placenta brings about complex changes which make it difficult to determine where the physiologic process ends and the pathologic process begins. During pregnancy all the functional reserve of the organism is centered on the developing fetus, while in the mother organism there is a scarcity of nutritional elements. This revolutionary state of metabolism is recognized in the growth of malignant tumors. The study includes sixty experiments consisting of rat sarcoma (Charkow strain), the Jansen rat sarcoma, and the Flexner-Jobling carcinoma. The author concludes that the period of pregnancy has an inhibitory influence on the growth of tumors; it may check or entirely suppress them, whereas the period of lactation increases the growth, so that a previously resorbed growth may be reawakened. During pregnancy the resorption and assimilation is great while the building up process is decreased. The oxidative processes and metabolism are changed in the gravida, while during lactation some of the metabolic processes are similar to the normal. During nursing, more food is used. This influences the nitrogen metabolism, but the nitrogen decomposition products are not as variable in the period of lactation as in the normal period. The oxidative process is more intensive during lactation. During pregnancy there is a greater percentage of oxidized nitrogenous products, but the purine bases are decreased, while during lactation there is no great difference between the content of urine nitrogen and urea nitrogen and between urine nitrogen and urea of the purine bases. Thus, the qualitative and quantitative metabolism determines the condition of the mother organism and the fetus, and the static condition due to the fetus influences malignant growths.

Influence of Intravenous Injections of Distilled Water on Blood.—Ginsburg states that intravenous injections of distilled water have a distinct influence on the blood of rabbits. This influence is noticed for injections of volumes of 8 to 10 cc. per kilogram of body weight, while larger doses are fatal. The reaction of the blood so far as the leukocytes are concerned is demonstrated in two phases: In the first phase there is a leukopenia, in the second a definite leukocytosis, and during both phases a deviation of the blood picture to the left and a strong febrile reaction. This is due to the reaction of the parenteral proteins. It may be that the escape of hemoglobin during the hemolysis of erythrocytes is due to such a protein reaction. On the basis of his experiments the author believes that intravenous injections of small volumes of distilled water may be a good physiologic method of autoprotein therapy.

7: 1-140 (No. 2) 1932

Binuclear and Polynuclear Sympathetic Ganglion Cells in Man. O. Chernyakhivskiy.—p. 7.
*Pathogenesis of Xanthomatosis. S. Minkin.—p. 17.
*Mechanism of Intussusception. B. Gaisinskiy.—p. 36.
Influence of Specific Therapy on Blood Sugar in Syphilis. L. G. Khristin.—p. 46.
Oxyquinoline Sulphate and Vaccines in Protein Therapy. O. S. Kotsevalova-Gerbova.—p. 57.
Influence of Mud Baths on Gastric Acidity. Ts. Levin.—p. 63.
Ukranian Word Tables for Testing Hearing. M. Bezkrobniy.—p. 68.
Hypertonia. P. Litsin.—p. 72.
Bone Regeneration. O. Meshchaninov.—p. 89.
Improved Method for Making Aptitude Tests. E. Khorshak.—p. 93.
Probe for Examination of Nasal Cavity. S. Mikhailovskiy.—p. 96.
Gaucher's Disease: Case. A. Sokolov.—p. 98.
Congenital Hernia of Diaphragm: Case. V. I. Oshkaderov.—p. 100.
Acute Inflammation of Meckel's Diverticulum. V. V. Popov.—p. 106.
Generalized Tuberculosis with Abdominal Symptoms. A. A. Juravel.—p. 111.

Pathogenesis of Xanthomatosis.—The personal observations of Minkin consist of two forms of xanthoma. He discusses the etiology and the pathology, including the chemistry and the lipolytic ferments of the xanthomatous tissue and the blood. The histologic and histochemical examinations of the affected regions of the skin and the achilles tendons demonstrate a cholesterol-fatty infiltration localized in the tissues and intracellular spaces. Chemical analysis of this infiltration indicates a variability in the quantity of cholesterol: the skin from the elbow of one patient contained 10.3 per cent of fat and of the total fat 19.9 per cent was cholesterol. In the achilles tendons there was 10 per cent fat, of which 78.5 per cent was cholesterol. On the basis of his results, the author concludes that the cholesterol content depends on the presence of more or less connective tissue. There was also a variation in the fat and especially cholesterol of the blood. Excised lipoid tissue from the patient did not show any ferment in contradistinction to normal tissue. The final conclusion is that xanthomatosis is a result of a deficiency in the lipolytic ferments and that the latter is closely connected with a disturbance in the glands of internal secretion.

Mechanism of Intussusception.—Gaisinskiy reviews the literature and gives the case histories of two personal observations of intestinal invagination with consequent intestinal obstruction. One patient was an infant, aged 6½ months, with a diagnosis of an invaginated ileum. During surgical intervention it was found that the small intestine was invaginated into the cecum and partly into the ascending colon. The second patient, a man, aged 62, had a lipoma with invagination into the small intestine. Resection of the invaginated parts and anastomosis was followed by recovery. Most of the reports in the literature show that the incidence of intestinal invagination is higher among children (from 70 to 80 per cent) than it is among adults. Among the various forms of invagination, the ileocecal forms appear most often. Pathologicohistologic examination classes invagination as a form of obstruction, between obturation and strangulation. The spastic theory may also be considered in the mechanism of invagination.

Hygiea, Stockholm

94: 257-288 (April 15) 1932

*Glandular Fever. P. Selander.—p. 257.
Rare Complication in Delivery (Hematoma in Round Ligament of Uterus). N. G. Nordenson.—p. 264.

Glandular Fever.—The third of Selander's three cases he is inclined to regard as a transition form between lymphatic leukemia and infectious mononucleosis; the differential diagnosis, which was impossible in the earlier stage of the condition, rested mainly on the favorable outcome.